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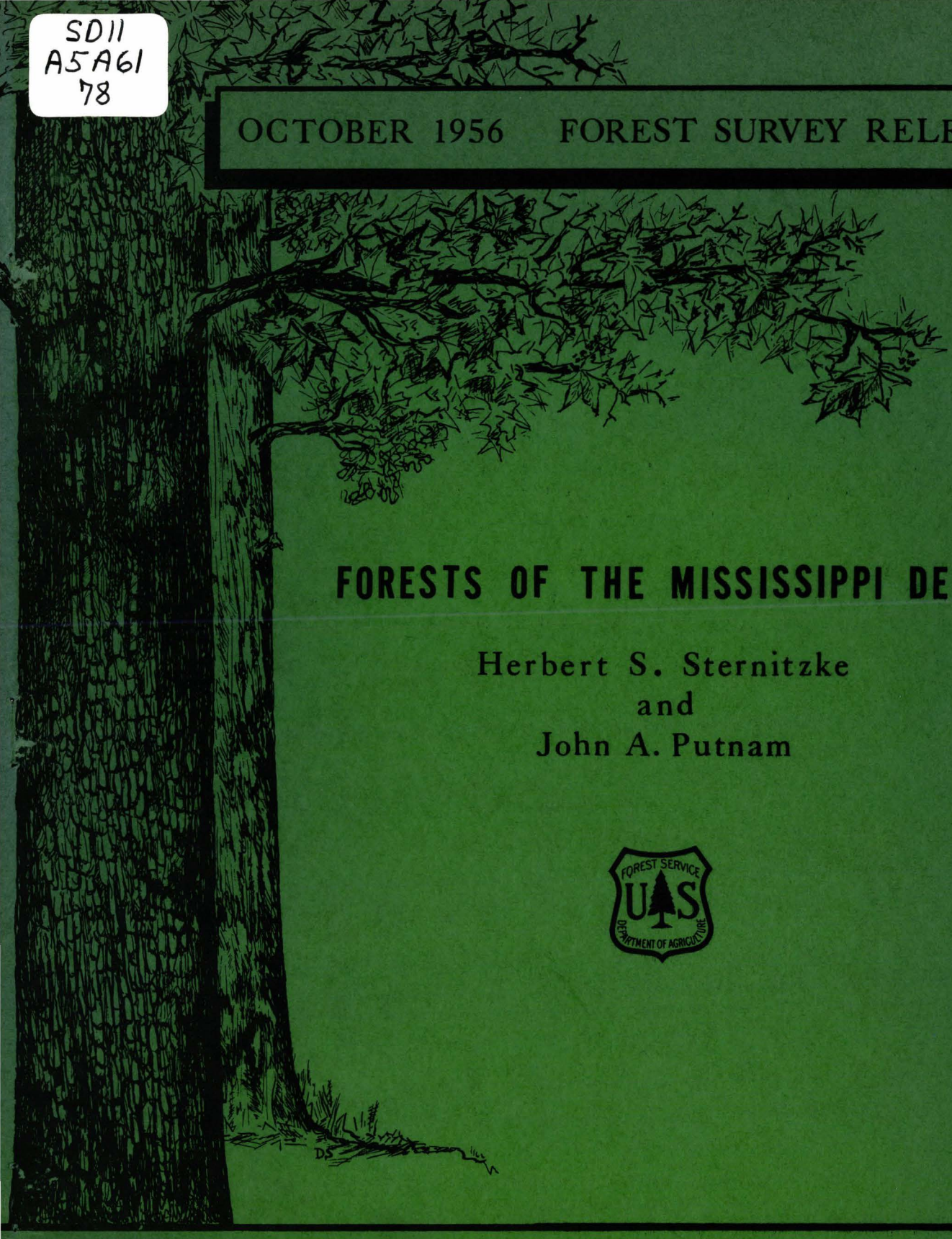

FORESTS OF THE MISSISSIPPI DELTA

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FOREWORD

The Forest Survey of the Mississippi Delta is a part of the national inventory being conducted by the U. S. Forest Service. The purposes of the Survey are (1) to take inventory of the supply of standing timber and other forest products, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which this supply is being diminished through use, and by fire, insects, disease, and other destructive agencies.

The Southern Forest Experiment Station is responsible for the Survey in Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas. Philip R. Wheeler, chief of the Division of Forest Economics, is in charge of the work.

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Figure 1.--Forest Survey regions in the Mississippi Delta.

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This report presents the principal findings of that part of the nationwide Forest Survey conducted in the Mississippi River Delta between 1947 and 1954. The results of an earlier Survey, made in the mid-1930's, are also drawn upon in order to show changes in forest conditions during the intervening years.

As used here, the "Delta" refers to the entire flood plain of the Mississippi River in Arkansas, Louisiana, and Mississippi; not merely to the alluvial deposit at the mouth of the River. Ranging in width from 30 to 120 miles, the Delta encompasses a total land area of some 28 million acres. For convenience in compiling data the Delta boundary in this report follows county lines (fig. 1). Thus, several part-Delta counties are included and a few are excluded.

Forest Land

Forest acreage has declined.--Agriculture, principally the growing of cotton, is well developed in the Mississippi River Delta. But the Delta is an important forest region, too. Its vast forest acreage is occupied almost entirely by hardwoods, cypress being the only softwood of importance.

At the time of reinventory, commercial forests[1/] covered 10.5 million acres, or 38 percent of the total land area. This is about 12 percent less forest land than in 1935.

1/ Definition of terms will be found on p. 15.

All sections of the Delta have experienced some decline in woodland acreage during the past 20 years. The heaviest reduction has occurred in Arkansas. Here, the net decline totaled more than 800,000 acres, a 19-percent drop. Much of the new ground in Arkansas has been devoted to rice production. These rice lands are not especially productive for timber, because their natural drainage is poor. Their conversion to farm land, therefore, has not reduced potential forest productivity in proportion to the acreage reduction.

The least clearing has been done in the southern portion of the Louisiana Delta, where the water table is prevailingly high. Present forest area in Louisiana's South Delta is only 6 percent less than in 1935.

Not all of the land cleared since the Great Depression has been well suited to agricultural use. Already some areas have been abandoned and have reverted to forest. Further shifts from farm to forest are likely. But it is apparent that with the unusually favorable circumstances for agriculture over much of the Delta region, including public participation in flood control and major drainage projects, and with public support of farm prices, the outlook is for further net reduction in forest acreage.

Table 1.--Commercial forest land by forest type, 1947-54

Forest type	Area
	Thousand acres
Mixed bottomland-hardwoods	5,532.7
Cottonwood-willow	810.0
Tupelo-cypress	1,086.7
Overcup oak-bitter pecan	1,358.1
Upland types 1/	1,741.2
Total	10,528.7

1/ Includes oak-hickory, pine-hardwood, and pine types.

Hardwoods characterize the Delta forests.--A rich variety of hardwood species occur in the Delta, but their typical association in stands may be conveniently classified into a few broad forest types (table 1).

With minor exceptions, the characteristic species of the widely distributed mixed bottomland-hardwood type are suitable for factory lumber, veneer, or cooperage. This broad type embraces at least two significant subtypes. The sweetgum-water oaks subtype occurs principally on the modern flood plain formed by the present drainage system. Common associates include green ash, soft elm, hackberry, overcup oak, and pecan. The red oaks-white oaks-other hardwoods subtype is variously characterized by cherrybark oak, cow oak, hickory, white ash, blackgum, and winged elm. This latter type is found mainly on the older soil formations or terraces.

Cottonwood-willow is a fast-growing river-margin type of high utility. Though the two species may be associated, each is commonly found in pure stands. Cottonwood usually grows on the high sandy-loam margins of streams or cut-off lakes, or on old fields. Willow is characteristically found on low banks along rivers or in shallow sloughs and swamps near the rivers.

Tupelo-cypress occurs mainly in the deep swamps and on the fertile but very heavy "buckshot" soils of low, wet flats and deep sloughs. Tupelo is frequently more abundant than cypress in heavily cutover stands of this potentially valuable type. Pure stands of one species or the other prevail in some sections of the Delta. In the swamps around Lake Maurepas and Lake Pontchartrain in Louisiana, swamp blackgum is a component of the type.

Overcup oak-bitter pecan occurs on the lower, poorly drained clay flats of first bottoms and terraces of the larger streams. In the great backwater basins of the Yazoo and Red Rivers, these species are generally of little commercial value. The overcup oak is usually short-boled, limby, and infested with insects. Ring shake is a common defect in bitter pecan. Often associated with these species, however, is a workable nucleus of more desirable species, notably Nuttall oak and green ash. Toward the outer edges of the Delta and especially on the older geologic formations to the north, the overcup oak and pecan tend to be of fair to good quality.

Upland hardwoods of good quality are found on Crowley's Ridge in the Arkansas Delta, and the deep brown loam bluffs that flank the eastern margin of the geologic Delta. These stands are distinguished from corresponding phases of the mixed bottomland oaks largely by the presence of yellow-poplar, beech, or pine. Some lower quality hardwoods, largely upland oaks and hickory, are included in the upland fringes.

Sawtimber stands predominate.--Generally speaking, the Delta has a far greater proportion of merchantable stands than the other two major hardwood regions of the South--the central hardwoods of western Tennessee and northwestern Arkansas, and the Appalachian hardwoods of eastern Tennessee and western North Carolina.

Large sawtimber stands, the main source of industrial wood, make up nearly 3 million acres (fig. 2). The Survey's minimum specifications for large sawtimber stands call for at least 1,500 board feet per acre (International 1/4-inch log rule) and at least half of this volume

in trees 16 inches and larger in diameter. On the average, however, large sawtimber stands in the Delta contain more than 5,000 board feet per acre, of which nearly half is in trees 20 inches and larger. All together, these stands embrace about half of the region's total sawtimber volume.

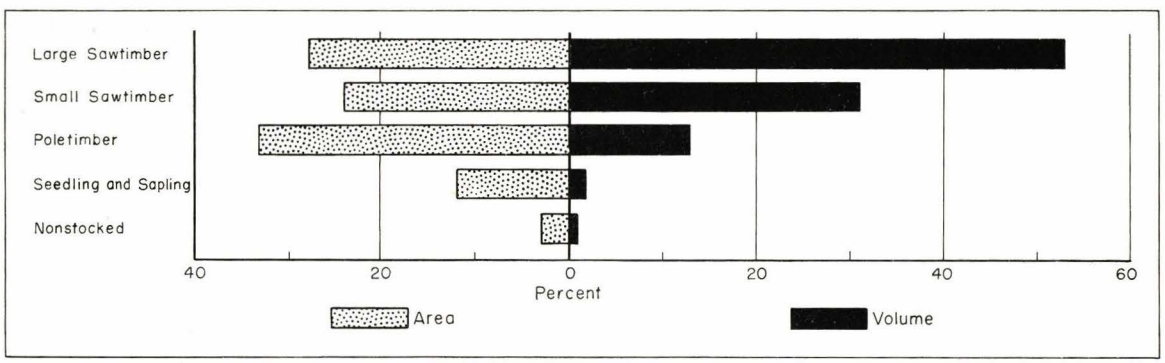

Figure 2.--Commercial forest area and sawtimber volume by stand-size class.

Small sawtimber stands cover 2.5 million acres. They average nearly 3,600 board feet per acre but have only a fifth of their volume in 20-inch and larger trees. Some of the small sawtimber stands are being logged now and more will be as the volume improves and pressure for hardwood sawtimber increases. But of importance is the fact that cutting aimed at stand improvement rather than harvest can greatly enhance productivity. If residual cull and weed trees are deadened after such logging, most small sawtimber stands would be in good shape for future development.

The remaining 5 million acres of Delta forest are mainly young growth. The areas support less than 1,500 board feet per acre. Most of this acreage is made up of poletimber stands. If given adequate protection from fire and premature harvesting, the young-growth areas will eventually contribute to a renovated sawtimber resource.

Timber Volume

Timber stocking has improved.--The volume of growing stock in the Delta--that is, all sound, well-formed trees at least 5.0 inches in d. b. h. --is 8 billion cubic feet (122 million cords). This is about 8 percent less volume than in the mid-1930's. The decline is due partly to extensive land clearing and partly to heavy cutting of large trees.

While total volume has fallen off, timber stocking has improved slightly. On a per-acre basis, growing stock volume is 5 percent greater.

The trend toward improved stocking has been accompanied by changes in the structure of timber stands. Present stands contain more small trees and fewer large trees (fig. 3). The increase in small trees represents a generally promising situation. But for the immediate future at least, the marked decline in trees over 18 inches in diameter means that traditional hardwood industries in the Delta will be faced generally with shortages in both quantity and quality of sawtimber.

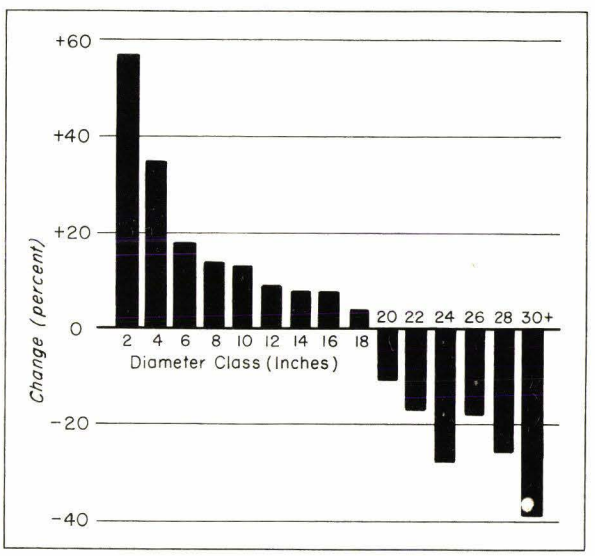

Figure 3.--Change in number of live trees between Surveys.

Cull volume 27 million cords.--Not included in the estimate of growing stock is an additional 1.8 billion cubic feet (27 million cords) of sound volume in cull trees. Because of excessive rot, roughness, or other defects, these trees are unmerchantable either now or prospectively for veneer, factory lumber, or other high-quality products. Most of the volume could, of course, serve for fuelwood or other farm-use products if demand were sufficient. Too, with increasing markets for wood fiber products, some of it can be channelled into pulpwood. For example, cull-tree volume in soft-textured hardwoods generally acceptable for pulping totals 7 million cords. But the quantity of cull is so large and the problem so widespread that investment in girdling or otherwise deadening culls is likely to prove the only effective way of rapidly reducing this tremendous overburden and increasing the growth of more valuable hardwoods on many areas.

Sawtimber volume has declined. --Delta forests support 25 billion board feet (Int. 1/4-inch rule) of hardwood and nearly 4 billion of softwood (figs. 4 and 5). This tally includes hardwoods at least 12 inches in diameter and softwoods not less than 10 inches.

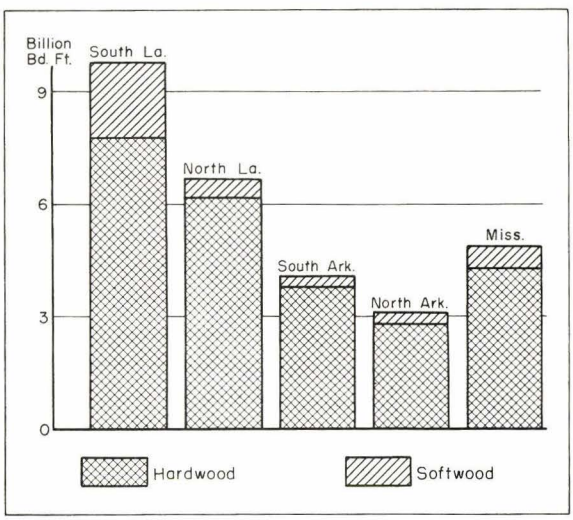

Figure 4. --Sawtimber volume by Delta Survey regions.

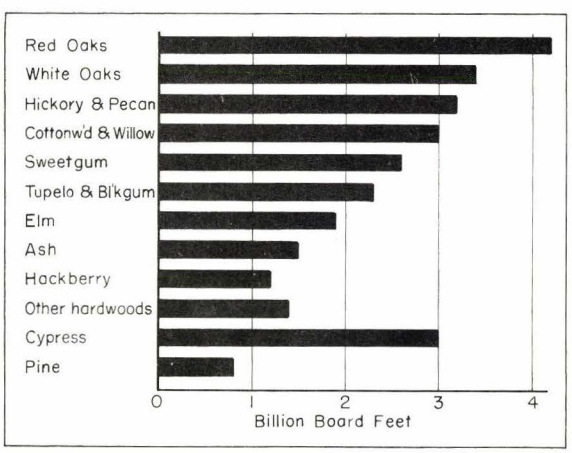

Figure 5. --Sawtimber volume by species.

Table 2. --Distribution of sawtimber volume by species, 1932-35 and 1947-54

Species	1932-35	1947-54
	- -Percent- -	
Sweetgum	9.6	9.2
Tupelo and blackgum	10.6	8.1
Water oaks	13.2	11.7
Other red oaks	2.0	3.1
Overcup oak 1/	12.6	8.9
Other white oaks	2.4	3.0
Pecan and hickory	9.4	11.8
Cottonwood and willow	9.2	10.1
Elm	7.4	6.8
Ash	3.6	5.2
Hackberry	3.0	4.0
Other hardwoods	4.9	4.8
Cypress	7.8	10.4
Pine	4.3	2.9
All species	100.0	100.0

1/ Includes a small amount of hill post oak.

By and large, industrial hardwoods are cut from trees 16 inches and larger. Volume in these size classes adds up to 17 billion board feet, or some 70 percent of the total hardwood sawtimber.

As table 2 indicates, there have been some changes in the proportion of sawtimber volume by major species groups between Surveys. It should be emphasized that changes must be valued in proportion to the magnitude of the item and of the change. Four changes of significance should be noted. Tupelo has declined, for it is being harvested increasingly, too often by clear cutting. Overcup oak has decreased, too.

Though overcup oak is generally in slack demand, large quantities were cut during World War II. The proportion of pecan and hickory has increased. About 75 percent of the volume in the pecan and hickory group is made up of bitter pecan, which is seldom cut because of inherently low value. The conspicuous increase in proportion of cypress is the result of surprisingly good development of many scattered second-growth stands, especially in south Louisiana.

The net change in sawtimber volume between Surveys amounted to a 14-percent decrease. This decline was felt in all of the Delta except south Louisiana. In Louisiana's South Delta, where there is less logging activity and where woods fires are infrequent, sawtimber volume registered a 23-percent increase.

Further indication of the trend toward improved forest productivity in south Louisiana is found in average volume per acre. Sawtimber volume now averages 3,460 board feet per acre; at the time of the initial Survey, 2,650 board feet. For the Delta as a whole, sawtimber stocking has remained virtually unchanged. It still averages some 2,700 board feet per acre. Mixed bottomland hardwood stands average 2,450 board feet per acre; the cottonwood-willow type, 3,070 board feet; and tupelo-cypress, 4,510 board feet. For sawtimber stands alone, volume averages 4,400 board feet per acre.

Tree size affects quality. --The 25 billion board feet of net volume in Delta hardwoods includes the entire woods run of trees physically utilizable as sawtimber. Much of this total is in trees of small size or low quality, and hence currently suited only for low-value uses such as heavy structural material, crating, crossties, or farm lumber. Among the many industrial uses of hardwoods, the manufacture of standard factory lumber greatly predominates. Requirements of logs for this purpose can, therefore, be taken as criteria for appraising commercial utility of hardwood sawtimber.

About 35 percent, or nearly 9 billion board feet, of the hardwood is in grade-2 or better logs--that is, logs that will yield a substantial proportion of No. 1 Common and better lumber. The remaining 16 billion board feet is of a quality below that normally preferred by Delta hardwood mills. This volume can generally be economically used only when it is cut from trees containing other logs of higher quality or when it can be channelled into products not requiring clear cuttings.

Fully half of the grade-3 and poorer hardwood volume occurs in stands classed as fair or better quality. These stands contain at least four grade-2 or better sawlogs per acre. Although this specification is

rather lenient, it serves to segregate stands that have some volume in grades best suited to industrial use, and which are most likely to be logged. In stands of fair to better quality particularly, it is often feasible to utilize lower grade logs along with the higher grade material.

It has been noted that a fair proportion of the hardwood is of low grade simply because it is of small size. For example, more than 30 percent of the total hardwood sawtimber volume occurs in trees of the 12- to 14-inch diameter classes. Such trees are too small to contain any grade-1 standard logs and seldom yield significant amounts of even grade-2 logs. But many of them can improve in grade and utility if permitted to grow to larger sizes.

Timber Cut and Growth

Lumber is chief claimant of Delta timber.--In 1954, when the latest cutting statistics were compiled, logging removed 261 million cubic feet of growing stock in the Delta (table 3). About 90 percent of this was cut from sawtimber-size trees.

Table 3.--Annual cut and net annual growth of sawtimber and growing stock, 1954

Delta regions	Timber cut		Growth	
	Growing stock	Sawtimber	Growing stock	Sawtimber
	Million cu. ft.	Million bd. ft.	Million cu. ft.	Million bd. ft.
Louisiana	94.6	404.4	246.7	891.0
Arkansas	86.8	345.1	124.5	403.8
Mississippi	79.5	279.9	59.3	227.7
Total	260.9	1,029.4	430.5	1,522.5

Information from severance-tax reports and other sources suggests that the total annual cut has been relatively stable since 1946. It has varied from a high of about 290 million cubic feet in 1948 to a low of some 240 million cubic feet in 1949. Average annual cut during the past decade has been roughly 280 million cubic feet. Except as noted below, trends for individual products are unavailable.

Sawlogs for lumber products, which make up nearly half of the annual timber cut, are by far the chief industrial use of wood (fig. 6). The production of lumber in the Delta is essentially an undertaking of large operators. In the portion of the Delta lying within the State of Mississippi, for example, it is estimated that fully 90 percent of the lumber is sawn at mills each processing several million board feet annually.

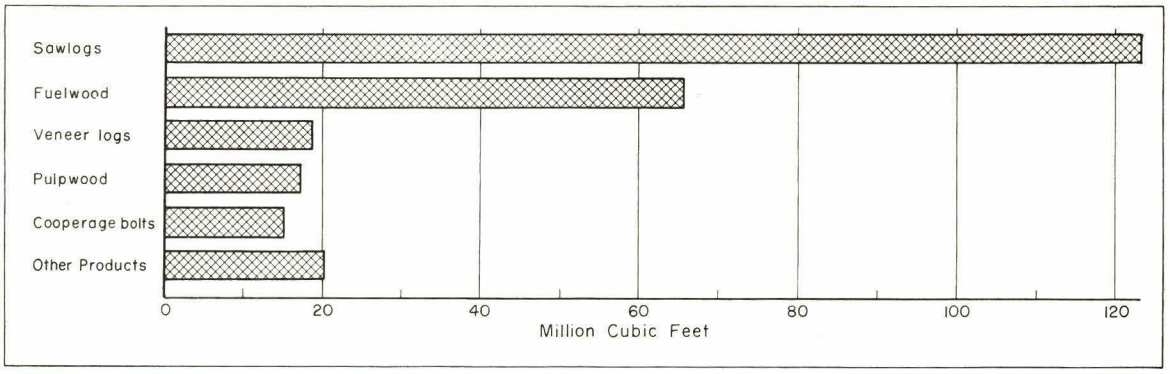

Figure 6. --Annual cut of growing stock.

Though its use is declining, fuelwood accounts for about a quarter of the growing stock cut. The remainder of the annual cut is mainly industrial wood, largely veneer, cooperage, and pulpwood.

A notable trend in recent years has been the marked increase in the amount of hardwood cut for pulp, virtually all of which is soft-textured species such as sweetgum. In 1949 the production of Delta hardwoods for pulp totaled 52 thousand cords. By 1954, hardwood production climbed to 188 thousand cords, and in 1955 it surged to 234 thousand. Further increases in the use of Delta hardwoods for pulp seem certain.

Rapid growth indicates good forestry potential. --As table 3 indicates, both growing stock and sawtimber growth in the Delta exceed the annual cut, except in the Mississippi portion. But all indications suggest that both the quantity and quality of the annual increment of the forest is far below capacity. In fact, it is estimated that present growth amounts to not over a third of the growth potential in terms of volume and probably not more than a sixth in utility and value.

If the Delta forests are to meet the needs of dependent wood-using plants, recent encouraging forestry trends must be greatly accelerated. Even if large-scale remedial measures are widely undertaken within the next few years, timber of the quality, size, and inherent utility for the distinctive hardwood industries is likely to be in short supply for at least a generation. At the same time, it should be recognized that the trend toward improved stocking of young growth offers an opportunity to rebuild the depleted growing stock.

Most second-growth bottomland stands grow about as rapidly as southern pine, in part because they occupy some of the most fertile forest soils. They respond well to cultural measures.

Table 4. --Average ten-year diameter growth, inside bark, by species and diameter group 1/

Species	All diameters	6-12 inches	14-18 inches	20-28 inches	30+ inches
			Inches		
Pine	2.51	2.47	2.74	3.26	...
Cypress	1.89	1.85	2.10	2.09	0.67
Sweetgum	2.36	2.31	2.59	2.68	2.73
Blackgum	1.53	1.49	1.67	1.84	...
Tupelo gum	2.13	2.09	2.43	2.55	2.15
Cottonwood	3.92	3.43	4.84	5.01	6.96
Willow	3.43	3.22	4.18	4.26	4.10
Water oaks	2.66	2.56	2.99	3.38	3.05
Other red oaks	2.52	2.48	2.56	3.17	5.47
Overcup oak	1.89	1.81	2.22	2.10	1.98
Other white oaks	1.71	1.63	2.18	2.20	2.07
Ash	1.96	1.88	2.37	2.68	2.03
Elm	1.88	1.85	1.93	2.28	3.32
Hackberry	1.99	1.99	1.96	2.22	1.80
Hickory	1.38	1.36	1.62	1.75	1.80
Bitter pecan	2.02	1.99	2.03	2.24	1.89
Sweet pecan	2.31	2.19	2.78	2.44	2.70
Other hardwood	2.30	2.26	2.63	2.55	2.70
All species	2.23	2.15	2.60	2.69	2.82

1/ Includes only Arkansas and Louisiana portions of Delta.

Table 5. --Average ten-year diameter growth, inside bark, by stand size and diameter group 1/

Stand-size	All diameters	6-12 inches	14-18 inches	20-28 inches	30+ inches
			Inches		
Large sawtimber	2.16	2.02	2.47	2.64	2.83
Small sawtimber	2.16	2.04	2.77	2.87	2.54
Poletimber	2.32	2.29	2.60	2.81	2.77
Seedling and sapling	2.95	2.98	2.70	2.96	3.47
Non-stocked and other areas	2.81	2.89	2.60	2.55	2.30
All stand sizes	2.23	2.15	2.60	2.69	2.82

1/ Includes only Arkansas and Louisiana portions of Delta.

Tables 4 and 5 summarize growth measurements of several thousand sample trees on Forest Survey plots in the Delta. These data are averages for trees in unmanaged stands, which are relatively understocked. Under management, even though stocking is built up, the stand averages can be materially increased by reducing the proportion of some slow-growing species and by improving stand structure.

The average 10-year diameter increase (inside bark) of trees of all species and sizes is practically 2-1/4 inches. Individual species vary considerably from the average. Cottonwood, willow, red oaks, and water oaks grow conspicuously faster than the average. Hickory, blackgum, overcup oak, and bitter pecan grow more slowly. It is notable and encouraging that in general the desirable species are average or faster growers, whereas the less valuable species are the slower growers.

Opportunities for Enhancing Forest Productivity

The Delta contains one of the most valuable supplies of commercial hardwoods in the Nation. The second-growth and residual old-growth that now characterize the Delta forests are no match, of course, for the original forest in terms of volume or quality. But the natural factors that produced the old growth are still there. The Delta is capable of supplying, on a permanent basis, much more timber than it now does.

Improving productivity of the Delta forests calls for wider application of well-known remedies--better protection from fire and other hazards; removal of cull trees; improved cutting practices to build up the volume and quality of timber growing stock; and intensified timber utilization.

Planting may prove useful for restocking abandoned farmlands and for improving composition of heavily cutover stands. The feasibility of planting cottonwood on properly prepared sites has already been demonstrated. But for other species of hardwoods and for cypress, further study is needed before large-scale planting is feasible on bottomlands.

Forest protection is basic prescription. --Adequate forest protection is the first step in management of southern hardwood forests.

The numerous fires that damaged Delta forests during the recent dry years emphasized once again that large areas can and do burn over in what is commonly thought of as "swampland."

Wildfire in bottomland hardwoods can kill or damage trees in every stage of development from seedlings to prime sawtimber. Progressive decay and degradation is common in wounded trees that do survive a fire. Recent studies have clearly shown that a single fire in bottomland hardwoods can nullify many years of good forest practices.

Landowners are also faced with disease and insect attacks that are not associated with fire. A disease of widespread occurrence during the past few years, for example, is the blight of sweetgum. Gum blight causes a gradual dying of the tree, usually from the top down. Insect pests such as stem borers and bark scarrers cause timber losses totaling millions of dollars annually through degradation of infested trees. Lowering of the water table in some areas has caused both outright mortality and degradation by insects that attack the weakened trees. While few control measures have yet been formulated for the many agents destructive to bottomland hardwoods, prompt salvage and sanitation cuttings of affected trees can hold losses to a minimum.

Grazing livestock browse and trample bottomland hardwood reproduction. Exclusion of livestock is therefore desirable. Under good forest management, the grazing capacity of Delta hardwoods is low. The trend toward more improved pastures may lessen future dependence upon woodland forage.

Cull hardwood must be removed. --One in every four trees of poletimber size and larger in the Delta is an outright cull. These rough, malformed, and rotten trees occupy growing space that can profitably be used by thrifty, merchantable trees or by new seedling crops. Worse yet, many are of inferior or weed species; others are of inherently poor form or quality. Leaving them to reproduce their kind deteriorates forest composition and value.

Studies at the Delta Research Center[2/] have shown that girdling or poisoning cull hardwoods is a sound investment. Large culls taking up about a seventh of the growing space on a 120-acre experimental tract, for example, were killed at a cost of $1.20 per acre. Thus, for every seven acres treated, effective growing space was increased by one acre with no increases in taxes or protection costs.

Owners placing Delta hardwoods under management have generally been quick to see the advantage of increasing their effective growing space. But so far, cull hardwoods have been removed from only a small portion of Delta forests.

Improvement cutting is needed.--While adequate forest protection and cull hardwood removal are important components of management, it is also essential that timber cutting be carried out so as to leave the forest in condition for high, continuous yields of timber.

In addition to cull trees, the typical stand of Delta hardwoods is usually burdened by many trees that contain some merchantable material but whose current or potential value is nevertheless low. It is the aim of improvement cutting to take out these less desirable trees for whatever they may bring, and thus make room for the development of better trees. The decision of whether or not to remove any given tree in an improvement cutting is governed by a number of complex factors such as species, tree size, form and quality, vigor and thrift, and the position and space occupied by the tree in the stand. Such a decision can obviously be arrived at only after a ground survey by a forester skilled in hardwood silviculture and utilization.

Recent experience on the Delta Research Center's experimental forest and on a number of industrial operations suggests that improvement cutting is commercially practical if expertly managed. Although the immediate profit margin may be small, such cutting enhances the future productivity of the residual stand.

Bottomland stands now average 2,900 board feet per acre. Although experimental evidence is meager, it appears that optimum stocking for typically uneven-aged stands of bottomland hardwoods on good sites will be about 10,000 board feet per acre (Int. 1/4-inch rule), midway through a 10-year cutting cycle. In such fully developed and intensively managed stands, trees 28 to 32 inches d.b.h. will be the usual mature sizes, with larger trees occurring commonly. Some 36-inch or larger trees may be grown for special products like face veneer.

2/ Maintained at Stoneville, Miss., by South. Forest Expt. Sta. jointly with Miss. Agr. Expt. Sta. and Southern Hardwood Forest Research Group.

Better utilization can help.--Forest industries have already made many adjustments to accommodate their production to the changing timber resource. Additional adjustments leading to the use of smaller and poorer timber and less desired species can extend the resource even further. To illustrate, the increasing demand for pulpwood offers an opportunity to thin young hardwood stands without reducing the inventory for more exacting products. When pulpwood cutting in young stands is done by careful thinning it is an important tool for forest betterment.

Another opportunity lies in the conversion of hardwood mill residues and perhaps low-grade logs into pulp chips and products such as particle board.

Integrated utilization, too, is a promising way of stretching out the resource. This means putting each tree harvested, and each part of each tree, into uses that will insure the greatest net return. Multiproduct harvesting usually requires a forester's supervision of cutting and marketing operations.

Intensified research in forest products and marketing can no doubt uncover further opportunities. If all avenues to more effective and complete utilization are fully traveled, the forest situation will be greatly helped.

The forest future.--The Delta includes some of the inherently most productive hardwood sites in the South. But liquidation of old growth during the past half century has left most stands deficient in timber of the quality, size, and utility demanded by the distinctive hardwood industries. Nevertheless the resource is still substantial relative to other major hardwood regions. While Delta forests encompass only 5 percent of the South's commercial forest area, they contain 20 percent of the volume in southern hardwoods 20 inches and larger in diameter. They currently supply more than 10 percent of the South's industrial hardwood.

The Delta is making the difficult transition from dependence on old growth to increased use of second growth. The speed with which landowners improve forest management will largely determine how quickly and how successfully the transition is made. While forest recovery is under way, industry will have to improve its manufacturing and marketing methods further, so as to utilize more low-quality raw material and species now left in the woods. In the long run, a large expansion of forestry efforts will enable the Delta to supply an even greater share of the Nation's future hardwood requirements.

Accuracy of the Survey

The 1947-54 data on forest acreage and timber volume were secured by a systematic sampling method involving a forest-nonforest classification on aerial photographs and on-the-ground measurement of quarter-acre sample plots. The sample plots were taken in pairs at and near the intersections of a grid of east-west and north-south lines spaced three miles apart.

Accuracy of the estimates may be affected by two types of error. The first stems from the use of a sample to estimate the whole and from variability of the items being sampled. This type is termed sampling error; it is susceptible to a mathematical evaluation of the probability of error. The second type of error derives from mistakes in measurement, judgment, arithmetic, or recording, and from limitations of method or equipment. Effects of this second type of error--often referred to as reporting or estimating error--cannot be appraised mathematically, but the Forest Survey constantly attempts to hold such error to a minimum by proper training and good supervision, and by emphasis on careful work.

Statistical analysis of the data, using random-sampling formulas, indicates a sampling error of plus or minus 0.4 percent for the estimate of total forest area, 1.9 percent for total cubic-foot volume, and 2.3 percent for total board-foot volume. However, because an equispaced systematic sample is generally more efficient than a random sample of the same size, these estimates of sampling error may be considered as setting an upper limit of error, rather than expressing the actual probability of error. As the acreage and volume totals for the Delta are broken down by Survey region, forest type, species, and other subdivisions of the data, the possibility of error increases and is greatest for the smallest items. The order of this increase is suggested in the following tabulation, which shows the sampling error to which the estimates are liable two chances out of three.

Forest area		Cubic volume		Board-foot volume	
Size of area sampled	Maximum sampling error	Volume sampled	Maximum sampling error	Volume sampled	Maximum sampling error
M acres	Percent	Million cu. ft.	Percent	Million bd. ft.	Percent
10,000	0.4	8,000	1.9	29,000	2.3
5,000	.6	5,000	2.5	20,000	2.8
2,000	.9	3,000	3.2	10,000	3.9
500	1.8	1,000	5.5	5,000	5.5
100	4.1	500	7.7	2,000	8.7
50	5.8	100	17.3	300	22.5

Growth estimates were derived from radial-growth measurements and mortality data taken on sample plots.

Estimates of annual cut are based on production surveys and wood utilization studies conducted during the period of forest inventory in the Delta. The data were adjusted to annual cut for a specified year (1954) through use of production indices derived from State severance tax information.

In computing the changes that took place between 1932-35 and 1947-54, the data from the first Forest Survey were adjusted to make them as closely comparable as possible to data from the second Survey. This was necessary because of certain basic differences between the two sets of data. In every case, the data from the first Survey were adjusted to conform to the standards of the second Survey before the change was computed.

The indicated change in total forest acreage between Surveys may be considered essentially correct. Forest acreage changes for Survey regions should be valued in proportion to the magnitude of the item and of the change. Changes in timber volume, because of the possible effect of nonsampling as well as sampling errors, are shown only for major groupings of the data.

Definition of Terms

Forest Land

Forest land. Includes: (a) land which is at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting an influence on the climate or on the water regime; (b) land from which the trees have been removed to less than 10 percent stocking and which has not been developed for other use; (c) afforested areas.

Commercial forest land. Forest land which is (a) producing, or is physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest land. Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Tree Species

Commercial species. Includes species that normally have value for commercial timber products; excludes so-called weed or noncommercial species such as blackjack oak, scrub post oak, blue beech, sourwood, etc.

Softwoods. Coniferous species, of which the most numerous is cypress (*Taxodium distichum*).

Hardwoods. Broadleaved species, of which the most numerous are the oaks (*Quercus* spp.) and sweetgum (*Liquidambar styraciflua*).

Forest Type

In each of the forest types listed in the detailed tables, the type name is derived from the predominating species. Table 13 shows the distribution of cubic volume by species within types.

Class of Timber

Sawtimber trees. Live trees of commercial species at least 9.0 inches d.b.h. in softwoods and 11.0 inches d.b.h. in hardwoods, that contain at least a 12-foot merchantable butt log--or, if the butt log is a cull, at least 50 percent of the gross sawlog volume is in merchantable logs. To be merchantable, a log must meet the following requirements:

(a) In softwoods, logs having a minimum 6-inch small-end diameter inside bark and at least one-third sound, with sweep or crook not exceeding two-thirds the small-end diameter.

(b) In hardwoods, logs having a minimum 8-inch small-end diameter inside bark and which meet the specifications of a standard lumber log or a tie and timber log.

Poletimber trees. Trees of commercial species which meet regional specifications of soundness and form, and which are of the following diameters at breast height: softwoods 5.0 to 9.0 inches; hardwoods 5.0 to 11.0 inches. (Such trees will usually become sawtimber trees if left to grow.)

Seedling and sapling trees. Live trees of commercial species less than 5.0 inches in diameter at breast height and of good form and vigor.

Cull trees. Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Rotten cull trees. Live trees of sawtimber or poletimber size which fail to meet regional specifications of proportion of sound volume to total volume.

Sound cull trees. Live trees of sawtimber or poletimber size which meet regional specifications of freedom from rot but will not make at least one merchantable sawlog now or prospectively according to regional specifications because of roughness, poor form, or species.

Hardwood limbs. Limbs of hardwood sawtimber trees and sawtimber-size cull hardwood trees to a minimum diameter of 4.0 inches inside bark.

Stand-size Class

Large sawtimber. Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International 1/4-inch rule, and at least half of this volume in sawtimber trees 16 inches and larger in diameter.

Small sawtimber. Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International 1/4-inch rule, but which do not meet the specifications for large sawtimber.

Poletimber. Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches d.b.h. and larger) trees and with at least half the minimum stocking in poletimber trees.

Seedling and sapling. Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling and sapling trees.

Nonstocked and other areas. Commercial forest land not qualifying as sawtimber, poletimber, or seedling and sapling stands.

Tree Stocking

Stocking is the extent to which growing space is effectively utilized by present or potential growing-stock trees of commercial species. Stands are considered to be well stocked when the percentage of full stocking is 70 or above, medium stocked when the percentage is 40 to 69, poorly stocked when the percentage is 10 to 39, and nonstocked when the percentage is under 10.

Volume

Sawtimber volume. Net volume in board feet, International 1/4-inch rule, of live sawtimber trees to a specified merchantable top.

Growing stock. Net volume in cubic feet of live sawtimber and live poletimber trees from stump to a minimum 4.0-inch top diameter (of central stem) inside bark.

All-timber volume. Net volume in cubic feet of live and salvable dead sawtimber trees and poletimber trees of commercial species, and cull trees of all species from stump to a minimum 4.0-inch top inside bark. Includes bole only of softwoods but both bole and limbs of hardwoods to a minimum 4.0-inch diameter inside bark.

Basal Area

Basal area. Cross-sectional area, including bark, of trees at breast height, measured in square feet.

Diameter

D.b.h. (diameter breast high). Tree diameter in inches, outside bark, measured at 4-1/2 feet above ground.

Diameter class. The 2-inch diameter classes extend from 1.0 inch below to 0.9 inch above the stated midpoint. Thus, the 12-inch class includes trees 11.0 inches to and including 12.9 inches d.b.h.

Growth

Net annual growth of sawtimber. The change during a specified year in net board-foot volume of live sawtimber on commercial forest land resulting from natural causes.

Net annual growth of growing stock. The change during a specified year in net cubic-foot volume of growing stock on commercial forest land resulting from natural causes.

Cut

Annual cut of sawtimber. The net board-foot volume of live sawtimber trees cut or killed by logging on commercial forest land during a specified year.

Annual cut of growing stock. The net cubic-foot volume of live sawtimber and poletimber trees cut or killed by logging on commercial forest land during a specified year.

Output

Timber products output. The volume of timber products cut from both growing stock and other sources.

Hardwood Log Class

Specifications for standard lumber logs (hardwood log grades 1, 2, and 3) are based on suitability for standard factory lumber.[3/] Studies have shown that for nearly all species tested, the yield of No. 1 Common and better lumber in grade 1 logs varies from 65 to 80 percent; in grade 2 logs from 40 to 64 percent; and in grade 3 logs from 13 to 36 percent.

Tie and timber logs are suitable for ties, timbers, and certain other construction lumber items. Specifications for tie and timber logs are based chiefly on knot size and log soundness; clear cuttings are not required.

Stand Quality

Fair and better. A stand in which at least four grade 2 or better logs are present per acre.

Poor. A stand in which fewer than four grade 2 or better logs are present per acre.

3/ For detailed specifications of log grades, see "Hardwood log grades for standard lumber: proposals and results." U. S. Forest Products Laboratory D1737. 1949.

DETAILED TABLES

The following tables present detailed statistics on the forests of the Mississippi Delta.

Table 6. --Forest and nonforest land by Survey regions, 1947-54

Land use	Region	Louisiana		Arkansas		Mississippi
		South Delta	North Delta	South Delta	North Delta	Delta
		Thousand acres				
Forest:						
Commercial	10,528.7	2,819.6	2,171.3	2,020.9	1,476.5	2,040.4
Noncommercial:						
Productive-reserved	4.4	.9	.4	...	.3	2.8
Unproductive	6.6	6.6	...	...	...	...
Total forest	10,539.7	2,827.1	2,171.7	2,020.9	1,476.8	2,043.2
Nonforest[1/]	17,564.7	6,882.4	1,375.2	2,669.0	3,216.3	3,421.8
All land	28,104.4	9,709.5	3,546.9	4,689.9	4,693.1	5,465.0

1/ Includes some acreage classifiable as water according to Survey standards of area classification but defined by the Bureau of Census as land.

Table 7. --Commercial forest land by class of ownership, 1947-54

Class of ownership	Commercial forest area	
	Thousand acres	Percent
Private:		
Farm	3,645.0	34.6
Forest industry	1,567.5	14.9
Other	4,899.1	46.5
Total private	10,111.6	96.0
Public:		
National forest	58.9	.6
Other federal	179.8	1.7
State	98.5	.9
County and municipal	79.9	.8
Total public	417.1	4.0
All ownerships	10,528.7	100.0

Table 8.--Commercial forest land by stand size and forest type, by Survey region, 1947-54

Forest type	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas[1]	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas[1]
	Thousand acres						Thousand acres					
	DELTA REGION						ARKANSAS - SOUTH DELTA					
Bottomland types:												
Mixed hardwoods	5,532.7	1,504.3	1,290.9	1,850.1	769.6	117.8	1,214.0	251.8	384.2	436.9	127.3	13.8
Cottonwood-willow	810.0	181.7	254.2	242.8	104.3	27.0	75.1	31.0	28.2	7.2	3.1	5.6
Tupelo-cypress	1,086.7	371.1	397.1	237.5	39.6	41.4	66.8	9.1	27.8	21.4	6.0	2.5
Overcup oak-bitter pecan	1,358.1	632.4	224.9	259.3	142.7	98.8	123.2	59.2	25.4	33.1	5.5	...
Total	8,787.5	2,689.5	2,167.1	2,589.7	1,056.2	285.0	1,479.1	351.1	465.6	498.6	141.9	21.9
Upland types:												
Pine and pine-hardwood	472.6	83.2	133.3	183.9	64.2	8.0	136.3	2.2	49.6	64.6	17.1	2.8
Oak-hickory	1,268.6	197.5	242.5	708.3	96.2	24.1	405.5	17.2	79.2	261.4	37.2	10.5
Total	1,741.2	280.7	375.8	892.2	160.4	32.1	541.8	19.4	128.8	326.0	54.3	13.3
All types	10,528.7	2,970.2	2,542.9	3,481.9	1,216.6	317.1	2,020.9	370.5	594.4	824.6	196.2	35.2
	LOUISIANA - SOUTH DELTA						ARKANSAS - NORTH DELTA					
Bottomland types:												
Mixed hardwoods	1,064.9	448.0	186.4	298.4	106.6	25.5	940.2	117.3	231.0	455.7	130.2	6.0
Cottonwood-willow	446.8	121.7	93.6	155.5	71.0	5.0	86.5	...	62.4	19.6	...	4.5
Tupelo-cypress	838.7	287.9	306.4	189.7	33.6	21.1	48.9	21.3	20.2	7.4	...	...
Overcup oak-bitter pecan	300.7	151.0	32.7	71.5	42.4	3.1	47.4	17.5	22.5	4.3	3.1	...
Total	2,651.1	1,008.6	619.1	715.1	253.6	54.7	1,123.0	156.1	336.1	487.0	133.3	10.5
Upland types:												
Pine and pine-hardwood	97.7	12.0	27.7	24.1	33.9	...	12.0	...	3.2	8.8	...	...
Oak-hickory	70.8	32.6	12.5	25.7	...	...	341.5	10.9	36.1	266.9	27.6	...
Total	168.5	44.6	40.2	49.8	33.9	...	353.5	10.9	39.3	275.7	27.6	...
All types	2,819.6	1,053.2	659.3	764.9	287.5	54.7	1,476.5	167.0	375.4	762.7	160.9	10.5
	LOUISIANA - NORTH DELTA						MISSISSIPPI - DELTA					
Bottomland types:												
Mixed hardwoods	1,268.3	567.7	209.2	352.6	102.6	36.2	1,045.3	119.5	280.1	306.5	302.9	36.3
Cottonwood-willow	71.0	26.2	9.8	17.5	14.0	3.5	130.6	2.8	60.2	43.0	16.2	8.4
Tupelo-cypress	34.4	16.1	...	8.5	...	9.8	97.9	36.7	42.7	10.5	...	8.0
Overcup oak-bitter pecan	559.1	351.6	40.0	97.8	17.8	51.9	327.7	53.1	104.3	52.6	73.9	43.8
Total	1,932.8	961.6	259.0	476.4	134.4	101.4	1,601.5	212.1	487.3	412.6	393.0	96.5
Upland types:												
Pine and pine-hardwood	168.3	64.2	44.5	50.2	9.4	...	58.3	4.8	8.3	36.2	3.8	5.2
Oak-hickory	70.2	23.7	6.9	29.2	10.4	...	380.6	113.1	107.8	125.1	21.0	13.6
Total	238.5	87.9	51.4	79.4	19.8	...	438.9	117.9	116.1	161.3	24.8	18.8
All types	2,171.3	1,049.5	310.4	555.8	154.2	101.4	2,040.4	330.0	603.4	573.9	417.8	115.3

1/ Includes areas not classified elsewhere.

Table 9. --Commercial forest land by degree of tree stocking and forest type, by Survey region, 1947-54

Forest type	All stocking	Well stocked	Medium stocked	Poorly stocked	Non-stocked	All stocking	Well stocked	Medium stocked	Poorly stocked	Non-stocked
	Thousand acres					Thousand acres				
	DELTA REGION					ARKANSAS - SOUTH DELTA				
Bottomland types:										
Mixed hardwoods	5,532.7	2,924.6	2,083.6	442.1	82.4	1,214.0	678.9	477.6	43.7	13.8
Cottonwood-willow	810.0	422.6	253.1	109.8	24.5	75.1	48.7	17.7	3.1	5.6
Tupelo-cypress	1,086.7	606.3	327.4	119.5	33.5	66.8	31.1	27.1	6.1	2.5
Overcup oak-bitter pecan	1,358.1	591.5	567.9	136.2	62.5	123.2	83.0	34.7	5.5	...
Total	8,787.5	4,545.0	3,232.0	807.6	202.9	1,479.1	841.7	557.1	58.4	21.9
Upland types:										
Pine and pine-hardwood	472.6	302.0	133.9	31.5	5.2	136.3	92.5	41.0	...	2.8
Oak-hickory	1,268.6	679.8	472.3	103.6	12.9	405.5	218.4	146.3	30.3	10.5
Total	1,741.2	981.8	606.2	135.1	18.1	541.8	310.9	187.3	30.3	13.3
All types	10,528.7	5,526.8	3,838.2	942.7	221.0	2,020.9	1,152.6	744.4	88.7	35.2
	LOUISIANA - SOUTH DELTA					ARKANSAS - NORTH DELTA				
Bottomland types:										
Mixed hardwoods	1,064.9	545.3	389.0	115.7	14.9	940.2	512.9	318.0	103.3	6.0
Cottonwood-willow	446.8	221.0	147.3	76.0	2.5	86.5	25.4	40.2	16.4	4.5
Tupelo-cypress	838.7	506.4	228.4	87.9	16.0	48.9	34.6	11.3	3.0	...
Overcup oak-bitter pecan	300.7	139.5	122.8	35.3	3.1	47.4	29.0	15.3	3.1	...
Total	2,651.1	1,412.2	887.5	314.9	36.5	1,123.0	601.9	384.8	125.8	10.5
Upland types:										
Pine and pine-hardwood	97.7	46.6	39.0	12.1	...	12.0	6.4	5.6	...	...
Oak-hickory	70.8	58.7	3.4	8.7	...	341.5	171.8	148.1	21.6	...
Total	168.5	105.3	42.4	20.8	...	353.5	178.2	153.7	21.6	...
All types	2,819.6	1,517.5	929.9	335.7	36.5	1,476.5	780.1	538.5	147.4	10.5
	LOUISIANA - NORTH DELTA					MISSISSIPPI - DELTA				
Bottomland types:										
Mixed hardwoods	1,268.3	879.9	290.1	74.4	23.9	1,045.3	307.6	608.9	105.0	23.8
Cottonwood-willow	71.0	58.6	8.9	...	3.5	130.6	68.9	39.0	14.3	8.4
Tupelo-cypress	34.4	13.3	5.8	8.3	7.0	97.9	20.9	54.8	14.2	8.0
Overcup oak-bitter pecan	559.1	262.4	216.5	58.9	21.3	327.7	77.6	178.6	33.4	38.1
Total	1,932.8	1,214.2	521.3	141.6	55.7	1,601.5	475.0	881.3	166.9	78.3
Upland types:										
Pine and pine-hardwood	168.3	123.8	44.5	...	...	58.3	32.7	3.8	19.4	2.4
Oak-hickory	70.2	47.5	15.9	6.8	...	380.6	183.4	158.6	36.2	2.4
Total	238.5	171.3	60.4	6.8	...	438.9	216.1	162.4	55.6	4.8
All types	2,171.3	1,385.5	581.7	148.4	55.7	2,040.4	691.1	1,043.7	222.5	83.1

Table 10.--Area of sawtimber stands by stand quality and forest type, by Survey region, 1947-54

Forest type	All qualities	Fair or better	Poor	All qualities	Fair or better	Poor
	- - - - Thousand acres - - - -			- - - Thousand acres - - -		
	DELTA REGION			ARKANSAS - SOUTH DELTA		
Bottomland types:						
Mixed hardwoods	2,795.2	1,464.3	1,330.9	636.0	248.3	387.7
Cottonwood-willow	435.9	220.9	215.0	59.2	34.1	25.1
Tupelo-cypress	768.2	462.8	305.4	36.9	11.5	25.4
Overcup oak-bitter pecan	857.3	582.9	274.4	84.6	50.1	34.5
Total	4,856.6	2,730.9	2,125.7	816.7	344.0	472.7
Upland types:						
Pine and pine-hardwood	216.5	118.1	98.4	51.8	15.5	36.3
Oak-hickory	440.0	227.2	212.8	96.4	33.0	63.4
Total	656.5	345.3	311.2	148.2	48.5	99.7
All types	5,513.1	3,076.2	2,436.9	964.9	392.5	572.4
	LOUISIANA - SOUTH DELTA			ARKANSAS - NORTH DELTA		
Bottomland types:						
Mixed hardwoods	634.4	389.5	244.9	348.3	151.6	196.7
Cottonwood-willow	215.3	106.7	108.6	62.4	9.1	53.3
Tupelo-cypress	594.3	354.5	239.8	41.5	30.8	10.7
Overcup oak-bitter pecan	183.7	111.1	72.6	40.0	29.7	10.3
Total	1,627.7	961.8	665.9	492.2	221.2	271.0
Upland types:						
Pine and pine-hardwood	39.7	20.3	19.4	3.2	...	3.2
Oak-hickory	45.1	32.6	12.5	47.0	15.0	32.0
Total	84.8	52.9	31.9	50.2	15.0	35.2
All types	1,712.5	1,014.7	697.8	542.4	236.2	306.2
	LOUISIANA- NORTH DELTA			MISSISSIPPI - DELTA		
Bottomland types:						
Mixed hardwoods	776.9	411.8	365.1	399.6	263.1	136.5
Cottonwood-willow	36.0	27.2	8.8	63.0	43.8	19.2
Tupelo-cypress	16.1	9.3	6.8	79.4	56.7	22.7
Overcup oak-bitter pecan	391.6	265.1	126.5	157.4	126.9	30.5
Total	1,220.6	713.4	507.2	699.4	490.5	208.9
Upland types:						
Pine and pine-hardwood	108.7	82.3	26.4	13.1	...	13.1
Oak-hickory	30.6	7.0	23.6	220.9	139.6	81.3
Total	139.3	89.3	50.0	234.0	139.6	94.4
All types	1,359.9	802.7	557.2	933.4	630.1	303.3

Table 11.--Total volume by class of timber and species, by Survey region, 1947-54

Species	All timber	Growing stock			Poletimber trees	Hardwood limbs	Cull trees
		Total growing stock	Sawtimber trees				
			Sawlog portions	Upper stems			
	Million cubic feet						
DELTA REGION							
Softwood:							
Cypress	689.0	632.0	492.6	70.6	68.8	...	57.0
Southern pines	1/191.9	189.7	135.2	13.2	41.3	...	2.2
Total	880.9	821.7	627.8	83.8	110.1	...	59.2
Hardwood:							
Red oaks	1,704.4	1,222.3	647.1	280.0	295.2	206.0	276.1
White oaks	1,339.5	966.0	522.2	237.9	205.9	181.4	192.1
Sweetgum	920.5	786.3	415.9	166.4	204.0	51.1	83.1
Tupelo and black gums	964.3	805.8	379.4	161.1	265.3	49.1	109.4
Other hardwoods	5,305.0	3,686.6	1,923.0	827.4	936.2	510.6	1,107.8
Total	10,233.7	7,467.0	3,887.6	1,672.8	1,906.6	998.2	1,768.5
All species	11,114.6	8,288.7	4,515.4	1,756.6	2,016.7	998.2	1,827.7
LOUISIANA - SOUTH DELTA							
Softwood:							
Cypress	436.8	401.9	306.6	36.1	59.2	...	34.9
Southern pines	37.5	37.3	26.1	2.3	8.9	...	.2
Total	474.3	439.2	332.7	38.4	68.1	...	35.1
Hardwood:							
Red oaks	324.5	241.2	142.1	65.7	33.4	45.2	38.1
White oaks	132.7	96.1	54.2	28.9	13.0	20.1	16.5
Sweetgum	288.4	253.5	135.5	53.9	64.1	12.0	22.9
Tupelo and black gums	726.6	643.6	291.7	125.2	226.7	26.9	56.1
Other hardwoods	1,703.1	1,231.7	608.5	269.7	353.5	136.6	334.8
Total	3,175.3	2,466.1	1,232.0	543.4	690.7	240.8	468.4
All species	3,649.6	2,905.3	1,564.7	581.8	758.8	240.8	503.5
LOUISIANA - NORTH DELTA							
Softwood:							
Cypress	24.2	18.8	15.6	1.7	1.5	...	5.4
Southern pines	90.6	90.0	75.3	4.6	10.1	...	.6
Total	114.8	108.8	90.9	6.3	11.6	...	6.0
Hardwood:							
Red oaks	331.2	240.5	127.7	59.8	53.0	42.2	48.5
White oaks	410.0	309.2	174.2	90.2	44.8	59.0	41.8
Sweetgum	231.3	201.9	107.5	42.6	51.8	10.4	19.0
Tupelo and black gums	24.1	17.9	10.6	4.8	2.5	1.7	4.5
Other hardwoods	1,268.5	932.6	525.6	238.5	168.5	139.0	196.9
Total	2,265.1	1,702.1	945.6	435.9	320.6	252.3	310.7
All species	2,379.9	1,810.9	1,036.5	442.2	332.2	252.3	316.7

Table 11. --Total volume by class of timber and species, by Survey region, 1947-54 (continued)

Species	All timber	Growing stock			Poletimber trees	Hardwood limbs	Cull trees
		Total growing stock	Sawtimber trees				
			Sawlog portions	Upper stems			
	Million cubic feet						
ARKANSAS - SOUTH DELTA							
Softwood:							
Cypress	45.7	36.9	30.1	4.5	2.3	...	8.8
Southern pines	40.4	40.2	23.1	3.2	13.9	...	.2
Total	86.1	77.1	53.2	7.7	16.2	...	9.0
Hardwood:							
Red oaks	375.2	249.2	114.8	47.7	86.7	41.2	84.8
White oaks	293.3	213.5	107.7	44.0	61.8	37.0	42.8
Sweetgum	130.8	107.6	53.5	22.1	32.0	9.9	13.3
Tupelo and black gums	50.6	33.4	16.2	6.6	10.6	4.8	12.4
Other hardwoods	901.7	608.3	305.9	125.8	176.6	92.4	201.0
Total	1,751.6	1,212.0	598.1	246.2	367.7	185.3	354.3
All species	1,837.7	1,289.1	651.3	253.9	383.9	185.3	363.3
ARKANSAS - NORTH DELTA							
Softwood:							
Cypress	70.2	65.9	54.3	8.8	2.8	...	4.3
Southern pines	3.2	3.2	2.1	.3	.8	...	...
Total	73.4	69.1	56.4	9.1	3.6	...	4.3
Hardwood:							
Red oaks	345.6	260.3	126.8	53.0	80.5	39.5	45.8
White oaks	249.0	197.3	94.7	38.6	64.0	29.0	22.7
Sweetgum	59.6	51.8	25.1	10.4	16.3	3.4	4.4
Tupelo and black gums	74.9	51.4	27.0	11.0	13.4	8.7	14.8
Other hardwoods	505.1	348.9	165.4	67.2	116.3	52.9	103.3
Total	1,234.2	909.7	439.0	180.2	290.5	133.5	191.0
All species	1,307.6	978.8	495.4	189.3	294.1	133.5	195.3
MISSISSIPPI - DELTA							
Softwood:							
Cypress	112.1	108.5	86.0	19.5	3.0	...	3.6
Southern pines	20.2	19.0	8.6	2.8	7.6	...	1.2
Total	132.3	127.5	94.6	22.3	10.6	...	4.8
Hardwood:							
Red oaks	327.9	231.1	135.7	53.8	41.6	37.9	58.9
White oaks	254.5	149.9	91.4	36.2	22.3	36.3	68.3
Sweetgum	210.4	171.5	94.3	37.4	39.8	15.4	23.5
Tupelo and black gums	88.1	59.5	33.9	13.5	12.1	7.0	21.6
Other hardwoods	926.6	565.1	317.6	126.2	121.3	89.7	271.8
Total	1,807.5	1,177.1	672.9	267.1	237.1	186.3	444.1
All species	1,939.8	1,304.6	767.5	289.4	247.7	186.3	448.9

1/ Includes a small amount of redcedar.

Table 12.--Growing stock by species and Survey region, 1947-54

Species	Region	Louisiana		Arkansas		Mississippi
		South Delta	North Delta	South Delta	North Delta	Delta
		Million cubic feet				
Softwood:						
Cypress	632.0	401.9	18.8	36.9	65.9	108.5
Southern pines	1/ 189.7	37.3	90.0	40.2	3.2	19.0
Total	821.7	439.2	108.8	77.1	69.1	127.5
Hardwood:						
Water oaks	945.2	208.6	212.5	161.0	184.0	179.1
Other red oaks	277.1	32.6	28.0	88.2	76.3	52.0
Overcup and post oaks	764.8	86.2	263.5	162.5	134.1	118.5
Other white oaks	201.2	9.9	45.7	51.0	63.2	31.4
Sweetgum	786.3	253.5	201.9	107.6	51.8	171.5
Tupelo and black gums	805.8	643.6	17.9	33.4	51.4	59.5
Ash	505.9	265.8	101.6	69.6	30.7	38.2
Cottonwood	209.2	41.4	35.9	64.3	12.4	55.2
Elm	547.8	93.4	202.5	89.5	77.6	84.8
Hackberry	370.2	120.7	108.3	84.0	19.0	38.2
Hickory, except pecans	151.6	10.1	15.4	57.8	38.5	29.8
Soft maple	114.7	78.4	5.4	4.9	18.7	7.3
Bitter pecan	628.8	168.6	250.9	78.6	30.5	100.2
Sweet pecan	110.2	10.2	44.9	29.9	8.0	17.2
Sycamore	69.7	11.1	18.7	16.9	6.9	16.1
Willow	671.2	384.0	65.3	47.3	75.2	99.4
Other hardwoods	307.3	48.0	83.7	65.5	31.4	78.7
Total	7,467.0	2,466.1	1,702.1	1,212.0	909.7	1,177.1
All species	8,288.7	2,905.3	1,810.9	1,289.1	978.8	1,304.6

1/ Includes a small amount of redcedar.

Table 13.--Distribution of growing stock by species within each forest type, 1947-54

Species	All types	Bottomland types				Upland types	
		Mixed hardwoods	Cottonwood-willow	Tupelo-cypress	Overcup oak-bitter pecan	Pine and pine-hardwood	Oak-hickory
				Percent			
Softwood:							
Cypress	7.6	2.6	4.3	34.8	1.8	. . .	(2/)
Southern pines	1/ 2.3	(2/)	.1	. . .	. . .	62.4	1.7
Total	9.9	2.6	4.4	34.8	1.8	62.4	1.7
Hardwood:							
Water oaks	11.5	20.2	.1	.5	6.9	4.5	5.6
Other red oaks	3.3	2.1	(2/)	(2/)	.3	9.9	20.1
Overcup and post oaks	9.3	6.8	.3	.7	33.2	5.4	10.4
Other white oaks	2.4	2.3	. . .	(2/)	(2/)	4.7	12.1
Sweetgum	9.5	16.3	.4	.6	1.7	5.3	15.7
Tupelo and black gums	9.7	1.1	1.3	49.1	.3	.7	3.8
Ash	6.1	9.4	3.2	4.4	5.2	.2	1.9
Cottonwood	2.5	1.3	17.3	.1	.1	. . .	.3
Elm	6.6	12.2	.2	.4	2.9	1.2	4.1
Hackberry	4.5	8.6	.4	.1	2.9	(2/)	.5
Hickory, except pecans	1.8	1.4	. . .	. . .	(2/)	2.9	11.5
Soft maple	1.4	1.7	.6	2.7	.1	.2	.6
Bitter pecan	7.6	4.7	.9	.7	38.5	. . .	.1
Sweet pecan	1.3	2.4	.1	(2/)	1.4	. . .	(2/)
Sycamore	.8	1.4	.7	.1	.2	.1	.8
Willow	8.1	1.6	68.1	5.2	.4	. . .	(2/)
Other hardwoods	3.7	3.9	2.0	.6	4.1	2.5	10.8
Total	90.1	97.4	95.6	65.2	98.2	37.6	98.3
All species	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Includes a small amount of redcedar.
2/ Negligible.

Table 14.--Growing stock by species and stand size, by Survey region, 1947-54

Species	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas[1/]
	Million cubic feet					
DELTA REGION						
Softwood:						
Cypress	632.0	281.6	281.3	57.6	9.7	1.8
Southern pines	2/189.7	60.9	83.6	42.6	2.3	.3
Total	821.7	342.5	364.9	100.2	12.0	2.1
Hardwood:						
Red oaks	1,222.3	467.2	403.8	305.0	37.5	8.8
White oaks	966.0	460.3	247.7	218.4	22.9	16.7
Sweetgum	786.3	342.1	272.0	154.3	15.9	2.0
Tupelo and black gums	805.8	364.8	315.5	118.3	4.0	3.2
Other hardwoods	3,686.6	1,819.0	1,078.9	691.2	69.9	27.6
Total	7,467.0	3,453.4	2,317.9	1,487.2	150.2	58.3
All species	8,288.7	3,795.9	2,682.8	1,587.4	162.2	60.4
LOUISIANA - SOUTH DELTA						
Softwood:						
Cypress	401.9	196.9	159.0	41.1	3.7	1.2
Southern pines	37.3	8.5	17.5	10.0	1.3	...
Total	439.2	205.4	176.5	51.1	5.0	1.2
Hardwood:						
Red oaks	241.2	163.4	42.6	27.9	5.9	1.4
White oaks	96.1	75.0	10.4	9.6	1.1	...
Sweetgum	253.5	142.6	63.1	43.2	4.4	.2
Tupelo and black gums	643.6	305.0	255.3	81.9	1.2	.2
Other hardwoods	1,231.7	715.1	280.7	214.2	18.6	3.1
Total	2,466.1	1,401.1	652.1	376.8	31.2	4.9
All species	2,905.3	1,606.5	828.6	427.9	36.2	6.1
LOUISIANA - NORTH DELTA						
Softwood:						
Cypress	18.8	14.7	.2	3.1	.2	.6
Southern pines	90.0	49.8	31.2	8.9	.1	...
Total	108.8	64.5	31.4	12.0	.3	.6
Hardwood:						
Red oaks	240.5	138.7	49.4	47.9	1.6	2.9
White oaks	309.2	229.5	25.4	36.2	5.7	12.4
Sweetgum	201.9	111.6	44.5	41.4	2.8	1.6
Tupelo and black gums	17.9	7.9	2.4	4.6	1.0	2.0
Other hardwoods	932.6	675.3	108.4	125.6	13.6	9.7
Total	1,702.1	1,163.0	230.1	255.7	24.7	28.6
All species	1,810.9	1,227.5	261.5	267.7	25.0	29.2

All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas[1/]
Million cubic feet					
ARKANSAS - SOUTH DELTA					
36.9	6.7	26.0	3.4	.8	...
40.2	.4	25.8	13.8	.2	...
77.1	7.1	51.8	17.2	1.0	...
249.2	58.1	110.7	75.1	5.0	.3
213.5	76.0	81.5	53.5	2.4	.1
107.6	34.0	48.3	24.9	.4	...
33.4	7.1	15.1	11.2	...	...
608.3	247.5	221.9	133.7	4.9	.3
1,212.0	422.7	477.5	298.4	12.7	.7
1,289.1	429.8	529.3	315.6	13.7	.7
ARKANSAS - NORTH DELTA					
65.9	24.5	34.5	6.5	.4	...
3.2	.1	.6	2.5	...	...
69.1	24.6	35.1	9.0	.4	...
260.3	46.0	93.7	111.7	8.7	.2
197.3	44.1	56.8	90.2	6.0	.2
51.8	17.5	15.6	17.8	.9	...
51.4	21.1	16.3	13.4	.6	...
348.9	64.3	155.6	118.7	10.3	...
909.7	193.0	338.0	351.8	26.5	.4
978.8	217.6	373.1	360.8	26.9	.4
MISSISSIPPI - DELTA					
108.5	38.8	61.6	3.5	4.6	...
19.0	2.1	8.5	7.4	.7	0.3
127.5	40.9	70.1	10.9	5.3	.3
231.1	61.0	107.4	42.4	16.3	4.0
149.9	35.7	73.6	28.9	7.7	4.0
171.5	36.4	100.5	27.0	7.4	.2
59.5	23.7	26.4	7.2	1.2	1.0
565.1	116.8	312.3	99.0	22.5	14.5
1,771.1	273.6	620.2	204.5	55.1	23.7
1,304.6	314.5	690.3	215.4	60.4	24.0

1/ Includes areas not classified elsewhere.
2/ Includes a small amount of redcedar.

Table 15.--Average volume per acre of growing stock by forest type and Survey region, 1947-54

Forest type	Region	Louisiana		Arkansas		Mississippi
		South Delta	North Delta	South Delta	North Delta	Delta
		Cubic feet				
Bottomland types:						
Mixed hardwoods	715	903	789	627	632	544
Cottonwood-willow	965	863	1,237	1,280	956	1,013
Tupelo-cypress	1,317	1,353	698	852	1,590	1,410
Overcup oak-bitter pecan	853	853	930	841	1,153	591
Upland types:						
Pine and pine-hardwood	605	575	860	504	368	331
Oak-hickory	593	1,034	638	508	496	706
All types	787	1,030	834	638	663	639

Table 16.--Average volume per acre of growing stock by stand size and forest type, 1947-54

Forest type	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas
		Cubic feet				
Bottomland types:						
Mixed hardwoods	715	1,184	894	437	140	151
Cottonwood-willow	965	1,532	1,340	647	84	25
Tupelo-cypress	1,317	1,814	1,507	648	100	133
Overcup oak-bitter pecan	853	1,213	871	413	149	330
Upland types:						
Pine and pine-hardwood	605	1,152	935	360	56	7
Oak-hickory	593	1,093	984	412	108	60
All types	787	1,278	1,055	456	133	190

Table 17.--Growing stock by species and tree diameter, by Survey region, 1947-54

Species	All diameter classes	6 - 8 inches	10 - 12 inches	14 - 18 inches	20 - 24 inches	26 inches and up
	Million cubic feet					
DELTA REGION						
Softwood:						
Cypress	632.0	68.8	144.3	254.8	68.9	95.2
Southern pines	1/ 189.7	41.3	58.8	64.9	20.8	3.9
Total	821.7	110.1	203.1	319.7	89.7	99.1
Hardwood:						
Water Oaks	945.2	121.1	193.0	304.3	194.6	132.2
Other red oaks	277.1	41.5	73.1	104.3	37.7	20.5
Overcup and post oaks	764.8	85.3	116.8	216.2	185.3	161.2
Other white oaks	201.2	30.9	52.7	76.0	26.6	15.0
Sweetgum	786.3	118.2	187.7	312.2	115.0	53.2
Tupelo and black gums	805.8	131.2	254.7	279.8	110.8	29.3
Ash	505.9	86.5	124.1	188.8	74.5	32.0
Cottonwood	209.2	14.6	34.7	95.0	36.3	28.6
Elm	547.8	57.2	118.0	219.7	109.0	43.9
Hackberry	370.2	47.5	98.1	173.7	46.7	4.2
Hickory, except pecans	151.6	40.0	40.6	42.5	18.0	10.5
Soft maple	114.7	36.1	30.9	31.9	12.5	3.3
Bitter pecan	628.8	49.9	96.2	214.3	174.9	93.5
Sweet pecan	110.2	14.8	17.0	35.7	23.4	19.3
Sycamore	69.7	6.1	13.2	23.4	12.0	15.0
Willow	671.2	87.5	208.5	276.1	73.1	26.0
Other hardwoods	307.3	70.0	75.4	95.3	46.1	20.5
Total	7,467.0	1,038.4	1,734.7	2,689.2	1,296.5	708.2
All species	8,288.7	1,148.5	1,937.8	3,008.9	1,386.2	807.3
LOUISIANA - SOUTH DELTA						
Softwood:						
Cypress	401.9	59.2	107.7	165.5	35.7	33.8
Southern pines	37.3	8.9	14.7	8.1	3.5	2.1
Total	439.2	68.1	122.4	173.6	39.2	35.9
Hardwood:						
Red oaks	241.2	18.1	32.9	73.0	58.6	58.6
White oaks	96.1	7.9	12.2	25.4	19.6	31.0
Sweetgum	253.5	35.0	63.7	99.6	41.7	13.5
Tupelo and black gums	643.6	108.8	219.7	216.8	73.8	24.5
Other hardwoods	1,231.7	185.7	331.1	456.4	186.1	72.4
Total	2,466.1	355.5	659.6	871.2	379.8	200.0
All species	2,905.3	423.6	782.0	1,044.8	419.0	235.9
LOUISIANA - NORTH DELTA						
Softwood:						
Cypress	18.8	1.5	1.8	8.6	3.6	3.3
Southern pines	90.0	10.1	22.2	40.3	15.6	1.8
Total	108.8	11.6	24.0	48.9	19.2	5.1
Hardwood:						
Red oaks	240.5	30.7	47.0	84.5	52.9	25.4
White oaks	309.2	26.1	36.9	93.1	99.2	53.9
Sweetgum	201.9	31.9	46.0	81.2	29.5	13.3
Tupelo and black gums	17.9	1.6	2.7	6.2	4.1	3.3
Other hardwoods	932.6	89.7	171.1	369.4	192.7	109.7
Total	1,702.1	180.0	303.7	634.4	378.4	205.6
All species	1,810.9	191.6	327.7	683.3	397.6	210.7

1/ Includes a small amount of redcedar.

Table 17.--Growing stock by species and tree diameter, by Survey region, 1947-54 (continued)

Species	All diameter classes	6 - 8 inches	10 - 12 inches	14 - 18 inches	20 - 24 inches	26 inches and up
			Million cubic feet			
			ARKANSAS - SOUTH DELTA			
Softwood:						
Cypress	36.9	2.3	9.5	19.6	5.5	. . .
Southern pines	40.2	13.9	15.2	10.5	.6	. . .
Total	77.1	16.2	24.7	30.1	6.1	. . .
Hardwood:						
Red oaks	249.2	50.0	70.3	86.1	33.7	9.1
White oaks	213.5	33.6	49.2	66.8	41.3	22.6
Sweetgum	107.6	17.4	28.3	40.2	13.2	8.5
Tupelo and black gums	33.4	6.0	8.6	11.0	6.9	.9
Other hardwoods	608.3	104.9	141.3	226.1	96.2	39.8
Total	1,212.0	211.9	297.7	430.2	191.3	80.9
All species	1,289.1	228.1	322.4	460.3	197.4	80.9
			ARKANSAS - NORTH DELTA			
Softwood:						
Cypress	65.9	2.8	16.0	29.5	6.9	10.7
Southern pines	3.2	.8	.9	1.5	. . .	. . .
Total	69.1	3.6	16.9	31.0	6.9	10.7
Hardwood:						
Red oaks	260.3	38.9	77.7	88.8	34.0	20.9
White oaks	197.3	34.9	51.5	63.9	16.8	30.2
Sweetgum	51.8	8.7	14.1	18.2	7.4	3.4
Tupelo and black gums	51.4	7.5	11.2	22.9	9.2	.6
Other hardwoods	348.9	59.6	99.3	128.0	33.3	28.7
Total	909.7	149.6	253.8	321.8	100.7	83.8
All species	978.8	153.2	270.7	352.8	107.6	94.5
			MISSISSIPPI DELTA			
Softwood:						
Cypress	108.5	3.0	9.3	31.6	17.2	47.4
Southern pines	19.0	7.6	5.8	4.5	1.1	. . .
Total	127.5	10.6	15.1	36.1	18.3	47.4
Hardwood:						
Red oaks	231.1	24.9	38.2	76.2	53.1	38.7
White oaks	149.9	13.7	19.7	43.0	35.0	38.5
Sweetgum	171.5	25.2	35.6	73.0	23.2	14.5
Tupelo and black gums	59.5	7.3	12.5	22.9	16.8	. . .
Other hardwoods	565.1	70.3	113.9	216.5	118.2	46.2
Total	1,177.1	141.4	219.9	431.6	246.3	137.9
All species	1,304.6	152.0	235.0	467.7	264.6	185.3

Table 18.--Sawtimber volume by species and Survey region, 1947-54

Species	Region	Louisiana		Arkansas		Mississippi
		South Delta	North Delta	South Delta	North Delta	Delta
		Million board feet				
Softwood:						
Cypress	2,987.6	1,819.3	97.6	181.0	333.3	556.4
Southern pines 1/	825.0	154.2	466.9	137.7	13.4	52.8
Total	3,812.6	1,973.5	564.5	318.7	346.7	609.2
Hardwood:						
Water oaks	3,331.2	822.2	756.3	476.8	582.8	693.1
Other red oaks	900.9	128.9	84.4	258.5	234.6	194.5
Overcup and post oaks 2/	2,750.9	328.2	1,015.4	523.6	414.1	469.6
Other white oaks	636.2	30.4	143.2	155.3	181.9	125.4
Sweetgum	2,648.8	859.6	687.1	341.3	159.8	601.0
Tupelo and black gums 3/	2,333.0	1,781.4	68.4	102.5	169.2	211.5
Ash	1,493.8	755.9	312.1	213.4	70.7	141.7
Cottonwood	850.3	148.9	179.7	259.2	46.3	216.2
Soft elm	1,175.6	302.9	314.0	174.1	176.4	208.2
Other elms	754.5	18.6	428.1	124.0	60.4	123.4
Hackberry	1,191.4	358.7	349.2	280.3	68.2	135.0
Hickory, except pecans	404.1	47.1	54.6	124.1	75.5	102.8
Soft maple	262.4	160.2	20.6	13.6	48.5	19.5
Bitter pecan	2,424.6	634.6	990.9	272.3	105.6	421.2
Sweet pecan	399.5	33.8	167.7	116.0	29.5	52.5
Sycamore	268.7	37.3	89.0	68.5	22.2	51.7
Willow	2,133.2	1,193.3	255.7	155.9	265.0	263.3
Other hardwoods	873.0	149.9	243.4	137.3	69.4	273.0
Total	24,832.1	7,791.9	6,159.8	3,796.7	2,780.1	4,303.6
All species	28,644.7	9,765.4	6,724.3	4,115.4	3,126.8	4,912.8

1/ Includes a small amount of redcedar.
2/ Overcup oak 96 percent, upland post oak 4 percent.
3/ Tupelo gum 90 percent, blackgum 10 percent.

Table 19. --Hardwood sawtimber volume by log class and stand quality, by species group and Survey region, 1947-54

Species group	All classes	Standard lumber logs					Tie and timber logs		
		Grade 1	Grade 2	Grade 3			Total	In fair and better stands	In poor stands
				Total	In fair and better stands	In poor stands			
	Million board feet								
DELTA REGION									
Water oaks	3,331.2	473.6	693.9	1,597.4	692.4	905.0	566.3	193.2	373.1
Other red oaks	900.9	72.0	153.6	599.3	196.4	402.9	76.0	25.2	50.8
Overcup and post oaks	2,750.9	432.3	631.1	1,208.0	618.8	589.2	479.5	191.6	287.9
Other white oaks	636.2	44.3	158.3	393.1	128.8	264.3	40.5	16.4	24.1
Sweetgum	2,648.8	292.8	496.4	1,399.8	779.1	620.7	459.8	222.7	237.1
Tupelo and black gums	2,333.0	224.6	642.9	1,308.2	881.6	426.6	157.3	126.4	30.9
Ash	1,493.8	216.6	344.7	841.2	491.3	349.9	91.3	44.4	46.9
Cottonwood	850.3	197.8	186.9	378.2	221.3	156.9	87.4	18.6	68.8
Elm	1,930.1	231.9	491.4	996.9	523.9	473.0	209.9	90.7	119.2
Hackberry	1,191.4	62.7	257.9	759.2	453.1	306.1	111.6	50.3	61.3
Hickory, except pecans	404.1	15.1	121.6	208.2	82.7	125.5	59.2	34.0	25.2
Soft maple	262.4	26.7	49.8	116.0	73.8	42.2	69.9	31.8	38.1
Bitter pecan	2,424.6	521.4	626.1	1,084.3	722.5	361.8	192.8	79.0	113.8
Sweet pecan	399.5	48.2	157.3	149.3	48.5	100.8	44.7	18.7	26.0
Sycamore	268.7	69.6	74.9	119.6	50.1	69.5	4.6	...	4.6
Willow	2,133.2	115.3	453.9	1,269.6	646.9	622.7	294.4	139.1	155.3
Other hardwoods	873.0	56.8	148.5	536.0	279.6	256.4	131.7	62.9	68.8
Total	24,832.1	3,101.7	5,689.2	12,964.3	6,890.8	6,073.5	3,076.9	1,345.0	1,731.9
LOUISIANA - SOUTH DELTA									
Red oaks	951.1	238.3	192.8	372.8	231.7	141.1	147.2	78.0	69.2
White oaks	358.6	79.5	66.6	149.0	80.4	68.6	63.5	30.2	33.3
Sweetgum	859.6	98.3	184.8	455.9	294.7	161.2	120.6	78.5	42.1
Tupelo and black gums	1,781.4	163.6	481.8	992.7	713.5	279.2	143.3	121.4	21.9
Other hardwoods	3,841.2	450.4	826.2	2,057.3	1,135.1	922.2	507.3	247.9	259.4
Total	7,791.9	1,030.1	1,752.2	4,027.7	2,455.4	1,572.3	981.9	556.0	425.9
LOUISIANA - NORTH DELTA									
Red oaks	840.7	107.7	166.3	417.9	194.2	223.7	148.8	49.7	99.1
White oaks	1,158.6	165.1	219.2	464.0	255.3	208.7	310.3	118.6	191.7
Sweetgum	687.1	84.6	101.2	318.4	148.8	169.6	182.9	70.2	112.7
Tupelo and black gums	68.4	20.6	23.0	20.7	11.6	9.1	4.1	...	4.1
Other hardwoods	3,405.0	629.8	754.4	1,564.5	993.8	570.7	456.3	188.8	267.5
Total	6,159.8	1,007.8	1,264.1	2,785.5	1,603.7	1,181.8	1,102.4	427.3	675.1
ARKANSAS - SOUTH DELTA									
Red oaks	735.3	64.4	113.8	462.6	124.0	338.6	94.5	14.1	80.4
White oaks	678.9	107.3	172.7	368.3	133.3	235.0	30.6	7.5	23.1
Sweetgum	341.3	42.2	57.7	208.6	85.7	122.9	32.8	.6	32.2
Tupelo and black gums	102.5	13.3	25.2	63.1	17.1	46.0	.9	...	.9
Other hardwoods	1,938.7	184.0	491.1	1,153.9	459.6	694.3	109.7	25.9	83.8
Total	3,796.7	411.2	860.5	2,256.5	819.7	1,436.8	268.5	48.1	220.4
ARKANSAS - NORTH DELTA									
Red oaks	817.4	73.8	156.6	439.7	89.7	350.0	147.3	31.6	115.7
White oaks	596.0	72.9	164.0	322.5	97.6	224.9	36.6	9.3	27.3
Sweetgum	159.8	19.0	30.1	88.3	40.0	48.3	22.4	14.3	8.1
Tupelo and black gums	169.2	10.5	43.1	111.3	56.7	54.6	4.3	2.7	1.6
Other hardwoods	1,037.7	89.1	278.1	607.6	244.5	363.1	62.9	18.2	44.7
Total	2,780.1	265.3	671.9	1,569.4	528.5	1,040.9	273.5	76.1	197.4
MISSISSIPPI - DELTA									
Red oaks	887.6	61.4	218.0	503.7	249.2	254.5	104.5	45.0	59.5
White oaks	595.0	51.8	166.9	297.3	181.0	116.3	79.0	42.4	36.6
Sweetgum	601.0	48.7	122.6	328.6	209.9	118.7	101.1	59.1	42.0
Tupelo and black gums	211.5	16.6	69.8	120.4	82.7	37.7	4.7	2.3	2.4
Other hardwoods	2,008.5	208.8	563.2	1,075.2	760.7	314.5	161.3	88.7	72.6
Total	4,303.6	387.3	1,140.5	2,325.2	1,483.5	841.7	450.6	237.5	213.1

Table 20.--Sawtimber volume by species and stand size, 1947-54

Species	All stand size	Large saw timber	Small saw timber	Pole-timber	Seedling and sapling	Nonstocked and other areas 1/
			Million board feet			
DELTA REGION						
Softwood:						
Cypress	2,987.6	1,458.5	1,277.7	201.2	43.7	6.5
Southern pines 2/	825.0	334.1	373.3	112.4	5.2	. . .
Total	3,812.6	1,792.6	1,651.0	313.6	48.9	6.5
Hardwood:						
Water oaks	3,331.2	1,641.0	1,057.7	499.3	101.9	31.3
Other red oaks	900.9	274.3	340.8	261.4	18.5	5.9
Overcup and post oaks	2,750.9	1,663.1	574.5	375.8	76.2	61.3
Other white oaks	636.2	198.1	233.3	190.4	9.4	5.0
Sweetgum	2,648.8	1,374.3	915.3	308.3	43.7	7.2
Tupelo and black gums	2,333.0	1,291.6	814.5	200.4	15.7	10.8
Ash	1,493.8	965.2	377.3	126.8	12.2	12.3
Cottonwood	850.3	420.3	323.1	99.6	7.3	. . .
Elm	1,930.1	1,072.0	436.2	302.9	83.7	35.3
Hackberry	1,191.4	713.9	295.6	162.6	18.1	1.2
Hickory, except pecans	404.1	173.5	107.8	113.1	7.2	2.5
Soft maple	262.4	134.1	81.9	43.9	2.5	. . .
Bitter pecan	2,424.6	1,642.8	543.6	171.4	35.5	31.3
Sweet pecan	399.5	254.0	72.7	58.3	6.0	8.5
Sycamore	268.7	162.1	73.3	32.2	1.1	. . .
Willow	2,133.2	970.0	892.4	253.8	16.7	.3
Other hardwoods	873.0	458.7	267.9	115.6	20.1	10.7
Total	24,832.1	13,409.0	7,407.9	3,315.8	475.8	223.6
All species	28,644.7	15,201.6	9,058.9	3,629.4	524.7	230.1
LOUISIANA - SOUTH DELTA						
Softwood:						
Cypress	1,819.3	1,005.3	670.9	125.5	14.4	3.2
Southern pines	154.2	44.7	75.2	30.2	4.1	. . .
Total	1,973.5	1,050.0	746.1	155.7	18.5	3.2
Hardwood:						
Red oaks	951.1	707.8	138.6	73.9	25.1	5.7
White oaks	358.6	302.2	28.0	25.2	3.2	. . .
Sweetgum	859.6	561.9	196.2	88.5	12.3	.7
Tupelo and black gums	1,781.4	1,059.8	609.9	107.8	3.2	.7
Other hardwoods	3,841.2	2,636.5	759.1	389.1	48.3	8.2
Total	7,791.9	5,268.2	1,731.8	684.5	92.1	15.3
All species	9,765.4	6,318.2	2,477.9	840.2	110.6	18.5
LOUISIANA - NORTH DELTA						
Softwood:						
Cypress	97.6	80.5	.4	13.4	. . .	3.3
Southern pines	466.9	279.6	147.8	39.1	.4	. . .
Total	564.5	360.1	148.2	52.5	.4	3.3
Hardwood:						
Red oaks	840.7	548.8	164.1	115.9	.4	11.5
White oaks	1,158.6	911.9	76.2	100.2	21.7	48.6
Sweetgum	687.1	453.1	143.7	76.4	7.4	6.5
Tupelo and black gums	68.4	36.0	7.3	13.9	4.4	6.8
Other hardwoods	3,405.0	2,654.6	352.1	327.1	39.9	31.3
Total	6,159.8	4,604.4	743.4	633.5	73.8	104.7
All species	6,724.3	4,964.5	891.6	686.0	74.2	108.0

Table 20.--Sawtimber volume by species and stand size, 1947-54 (continued)

Species	All stand size	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas 1/
			Million board feet			
			ARKANSAS - SOUTH DELTA			
Softwood:						
Cypress	181.0	35.3	127.2	14.4	4.1	. . .
Southern pines	137.7	1.4	113.8	22.2	.3	. . .
Total	318.7	36.7	241.0	36.6	4.4	. . .
Hardwood:						
Red oaks	735.3	207.7	359.8	149.2	16.9	1.7
White oaks	678.9	314.8	228.4	127.0	8.7	. . .
Sweetgum	341.3	149.2	144.7	46.3	1.1	. . .
Tupelo and black gums	102.5	32.4	40.5	29.6	. . .	. . .
Other hardwoods	1,938.7	962.6	683.7	276.6	15.8	. . .
Total	3,796.7	1,666.7	1,457.1	628.7	42.5	1.7
All species	4,115.4	1,703.4	1,698.1	665.3	46.9	1.7
			ARKANSAS - NORTH DELTA			
Softwood:						
Cypress	333.3	137.6	160.4	33.0	2.3	. . .
Southern pines	13.4	.5	3.2	9.7	. . .	. . .
Total	346.7	138.1	163.6	42.7	2.3	. . .
Hardwood:						
Red oaks	817.4	190.4	313.0	284.1	29.0	.9
White oaks	596.0	186.5	177.7	210.3	21.5	. . .
Sweetgum	159.8	73.7	47.3	35.6	3.2	. . .
Tupelo and black gums	169.2	77.5	53.6	35.2	2.9	. . .
Other hardwoods	1,037.7	241.9	521.5	241.4	32.9	. . .
Total	2,780.1	770.0	1,113.1	806.6	89.5	.9
All species	3,126.8	908.1	1,276.7	849.3	91.8	.9
			MISSISSIPPI DELTA			
Softwood:						
Cypress	556.4	199.8	318.8	14.9	22.9	. . .
Southern pines	52.8	7.9	33.3	11.2	.4	. . .
Total	609.2	207.7	352.1	26.1	23.3	. . .
Hardwood:						
Red oaks	887.6	260.6	423.0	137.6	49.0	17.4
White oaks	595.0	145.8	297.5	103.5	30.5	17.7
Sweetgum	601.0	136.4	383.4	61.5	19.7	. . .
Tupelo and black gums	211.5	85.9	103.2	13.9	5.2	3.3
Other hardwoods	2,008.5	471.0	1,155.4	246.0	73.5	62.6
Total	4,303.6	1,099.7	2,362.5	562.5	177.9	101.0
All species	4,912.8	1,307.4	2,714.6	588.6	201.2	101.0

1/ Includes areas not classified elsewhere.
2/ Includes a small amount of redcedar.

Table 21.--Sawtimber volume by species and tree diameter, 1947-54

Species	All diameter classes	10-12 inches 2/	14-18 inches	20-24 inches	26 inches and up
		Million board feet			
DELTA REGION					
Softwood:					
Cypress	2,987.6	652.2	1,373.1	398.3	564.0
Southern pines	1/ 825.0	287.7	381.0	130.8	25.5
Total	3,812.6	939.9	1,754.1	529.1	589.5
Hardwood:					
Water oaks	3,331.2	416.9	1,376.2	908.6	629.5
Other red oaks	900.9	149.5	474.8	177.2	99.4
Overcup and post oaks	2,750.9	222.8	942.1	837.9	748.1
Other white oaks	636.2	104.4	339.3	123.5	69.0
Sweetgum	2,648.8	414.2	1,410.2	562.9	261.5
Tupelo and black gums	2,333.0	446.8	1,213.9	526.5	145.8
Ash	1,493.8	225.8	806.0	327.3	134.7
Cottonwood	850.3	82.9	437.9	182.8	146.7
Elm	1,930.1	256.0	971.7	499.0	203.4
Hackberry	1,191.4	205.7	754.3	212.3	19.1
Hickory, except pecans	404.1	74.4	191.7	85.3	52.7
Soft maple	262.4	52.3	135.9	58.7	15.5
Bitter pecan	2,424.6	222.1	951.4	817.5	433.6
Sweet pecan	399.5	34.5	161.8	111.8	91.4
Sycamore	268.7	33.4	104.8	57.0	73.5
Willow	2,133.2	408.1	1,237.3	357.8	130.0
Other hardwoods	873.0	142.0	420.0	212.6	98.4
Total	24,832.1	3,491.8	11,929.3	6,058.7	3,352.3
All species	28,644.7	4,431.7	13,683.4	6,587.8	3,941.8
LOUISIANA - SOUTH DELTA					
Softwood:					
Cypress	1,819.3	495.8	904.2	212.5	206.8
Southern pines	154.2	71.6	47.0	21.9	13.7
Total	1,973.5	567.4	951.2	234.4	220.5
Hardwood:					
Red oaks	951.1	71.5	330.5	272.0	277.1
White oaks	358.6	26.8	108.0	87.6	136.2
Sweetgum	859.6	134.2	449.1	209.4	66.9
Tupelo and black gums	1,781.4	369.0	935.9	354.1	122.4
Other hardwoods	3,841.2	631.0	2,000.7	869.0	340.5
Total	7,791.9	1,232.5	3,824.2	1,792.1	943.1
All species	9,765.4	1,799.9	4,775.4	2,026.5	1,163.6
LOUISIANA - NORTH DELTA					
Softwood:					
Cypress	97.6	8.6	47.6	21.9	19.5
Southern pines	466.9	113.4	242.5	99.2	11.8
Total	564.5	122.0	290.1	121.1	31.3
Hardwood:					
Red oaks	840.7	103.0	378.2	240.6	118.9
White oaks	1,158.6	71.3	397.4	441.5	248.4
Sweet gum	687.1	103.7	367.4	147.6	68.4
Tupelo and black gums	68.4	6.6	25.8	19.8	16.2
Other hardwoods	3,405.0	367.6	1,622.2	900.6	514.6
Total	6,159.8	652.2	2,791.0	1,750.1	966.5
All species	6,724.3	774.2	3,081.1	1,871.2	997.8

1/ Includes small amount of redcedar.
2/ Hardwood sawtimber volume was not tallied in trees under 11.0 inches d.b.h.

Table 21.--Sawtimber volume by species and tree diameter, 1947-54 (continued)

Species	All diameter classes	10-12 inches	14-18 inches	20-24 inches	21 inches and up
			Million board feet		
		ARKANSAS - SOUTH DELTA			
Softwood:					
Cypress	181.0	43.1	105.3	32.6	. . .
Southern pines	137.7	74.9	59.2	3.6	. . .
Total	318.7	118.0	164.5	36.2	. . .
Hardwood:					
Red oaks	735.3	144.3	389.4	158.5	43.1
White oaks	678.9	88.2	295.9	188.8	106.0
Sweetgum	341.3	59.0	180.6	61.5	40.2
Tupelo and black gums	102.5	17.0	49.0	32.4	4.1
Other hardwoods	1,938.7	295.2	1,009.5	445.8	188.2
Total	3,796.7	603.7	1,924.4	887.0	381.6
All species	4,115.4	721.7	2,088.9	923.2	381.6
		ARKANSAS - NORTH DELTA			
Softwood:					
Cypress	333.3	69.3	157.7	40.0	66.3
Southern pines	13.4	4.5	8.9	. . .	. . .
Total	346.7	73.8	166.6	40.0	66.3
Hardwood:					
Red oaks	817.4	155.3	402.7	159.4	100.0
White oaks	596.0	93.8	284.0	77.3	140.9
Sweet gum	159.8	28.0	81.4	34.4	16.0
Tupelo and black gums	169.2	22.4	101.6	42.1	3.1
Other hardwoods	1,037.7	179.4	569.1	154.8	134.4
Total	2,780.1	478.9	1,438.8	468.0	394.4
All species	3,126.8	552.7	1,605.4	508.0	460.7
		MISSISSIPPI DELTA			
Softwood:					
Cypress	556.4	35.4	158.3	91.3	271.4
Southern pines	52.8	23.3	23.4	6.1	. . .
Total	609.2	58.7	181.7	97.4	271.4
Hardwood:					
Red oaks	887.6	92.3	350.2	255.3	189.8
White oaks	595.0	47.1	196.1	166.2	185.6
Sweet gum	601.0	89.3	331.7	110.0	70.0
Tupelo and black gums	211.5	31.8	101.6	78.1	. . .
Other hardwoods	2,008.5	264.0	971.3	551.9	221.3
Total	4,303.6	524.5	1,950.9	1,161.5	666.7
All species	4,912.8	583.2	2,132.6	1,258.9	938.1

Table 22. --Average sawtimber volume per acre by forest type and Survey region, 1947-54

Forest type	Region	Louisiana		Arkansas		Mississippi
		South Delta	North Delta	South Delta	North Delta	Delta
		Board feet				
Bottomland types:						
Mixed hardwoods	2,455	3,130	2,793	2,069	1,937	2,081
Cottonwood-willow	3,069	2,507	5,155	4,309	3,346	3,093
Tupelo-cypress	4,513	4,422	2,969	3,337	6,755	6,218
Overcup oak-bitter pecan	3,266	3,136	3,562	3,158	4,654	2,442
Upland types:						
Pine and pine-hardwood	2,217	2,137	3,721	1,401	1,050	969
Oak-hickory	1,763	4,249	2,051	1,167	1,267	2,489
All types	2,721	3,463	3,097	2,036	2,118	2,408

Table 23. --Average sawtimber volume per acre by stand size and forest type, 1947-54

Forest type	All stand sizes	Large saw-timber	Small saw-timber	Pole-timber	Seedling and sapling	Nonstocked and other areas
	Board feet					
Bottomland types:						
Mixed hardwoods	2,445	4,662	2,957	1,051	449	535
Cottonwood-willow	3,069	6,406	4,085	1,058	131	67
Tupelo-cypress	4,513	7,209	4,855	1,168	426	423
Overcup oak-bitter pecan	3,266	4,837	3,215	1,187	567	1,306
Upland types:						
Pine and pine-hardwood	2,217	5,364	3,471	861	112	...
Oak-hickory	1,763	4,391	3,163	839	351	120
All types	2,721	5,118	3,562	1,042	431	726

Table 24. --Change in commercial forest land area, growing stock, and sawtimber volume between Surveys (1932-35 and 1947-54), by Survey region

Survey region	Forest land	Growing stock	Sawtimber volume
	Percent		
Arkansas			
North Delta	- 26	- 11	- 13
South Delta	- 13	- 21	- 28
Louisiana			
North Delta	- 11	- 22	- 27
South Delta	- 6	+ 26	+ 23
Mississippi			
Delta	- 9	- 21	- 29
All regions	- 12	- 8	- 14

STANDARD TABLES

Tables identical in format to those that follow will be found in all State reports issued by the Forest Survey. Their purpose is to facilitate compilation of data for various States and regions.

Table I. --Land area, by major classes of land, Mississippi Delta, 1947-54

Class of land	Area
	Thousand acres
Forest:	
Commercial	10,528.7
Noncommercial:	
Productive-reserved	4.4
Unproductive	6.6
Total	10,539.7
Nonforest 1/	17,564.7
Total, all classes	28,104.4

1/ Includes some acreage of water according to Survey standards of area classification but defined by the Bureau of Census as land.

Table II. --Commercial forest land area, by ownership class, Mississippi Delta, 1947-54

Ownership class	Area
	Thousand acres
Federally owned or managed:	
National forest	58.9
Indian	...
Bureau of Land Management	5.4
Other	174.4
Total	238.7
State	98.5
County and municipal	79.9
Private:	
Farm	3,645.0
Industrial and other	6,466.6
Total	10,111.6
All ownerships	10,528.7

Table III. --Area of commercial forest land, by major forest types, Mississippi Delta, 1947-54

Forest type 1/	Thousand acres
Loblolly-shortleaf pine	289.6
Oak-pine	183.0
Oak-hickory	1,268.6
Oak-gum-cypress	7,895.4
Elm-ash-cottonwood	892.1
Total	10,528.7

1/ The forest types in this table conform with standard types defined by the national Forest Survey. Except in the oak-pine type, the species named make up 50 percent or more of the cubic volume of the standard type. In the oak-pine type, southern pines make up 25 to 49 percent of the volume; the remainder is hardwood, mostly upland oaks.

Table IV. --Net volume of live sawtimber and growing stock on commercial forest land, by stand-size class, Mississippi Delta, 1947-54

Stand-size class	Sawtimber	Growing stock
	Million board feet	Million cubic feet
Sawtimber stands	24,260.5	6,478.7
Poletimber stands	3,629.4	1,587.4
Seedling and sapling stands	524.7	162.2
Nonstocked and other areas not elsewhere classified	230.1	60.4
Total	28,644.7	8,288.7

Table V. --Net volume of live sawtimber and growing stock on commercial forest land, by ownership class, Mississippi Delta, 1947-54

Ownership class	Sawtimber	Growing stock
	Million board feet	Million cubic feet
Federally owned or managed 1/	990.5	191.9
State 2/	459.8	134.9
Private:		
Farm	7,556.3	2,332.8
Industrial and other	19,638.1	5,629.1
Total	27,194.4	7,961.9
All ownerships	28,644.7	8,288.7

1/ Separation by managing agency not available.
2/ Includes county and municipal.

Table VI. --Net volume of live sawtimber and growing stock on commercial forest land, by species, Mississippi Delta, 1947-54

Species	Sawtimber	Growing stock
	Million board feet	Million cubic feet
Softwoods:		
Shortleaf and loblolly pines	816.2	184.9
Other southern yellow pines	5.6	1.0
Cypress	2,987.6	632.0
Other eastern softwoods	3.2	3.8
Total	3,812.6	821.7
Hardwoods:		
White oaks (Q. alba and michauxii)	501.0	157.5
Red oaks (Q. rubra, shumardii, and falcata var. pagodaefolia)	507.3	146.9
Other white oaks	2,886.1	808.5
Other red oaks	3,724.8	1,075.4
Sugar maple	13.5	4.5
Soft maples	262.4	114.7
Beech	139.5	33.2
Sweetgum	2,648.8	786.3
Tupelo and blackgum	2,333.0	805.8
Ash	1,493.8	505.9
Hickory	3,228.2	890.6
Cottonwood	850.3	209.2
Basswood	14.8	3.8
Yellow-poplar	80.2	19.4
Black walnut	2.9	1.3
Other eastern hardwoods	6,145.5	1,904.0
Total	24,832.1	7,467.0
All species	28,644.7	8,288.7

Table VII. --Net volume of live sawtimber on commercial forest land, by diameter class groups and species, Mississippi Delta, 1947-54

Species	Diameter class groups						Total
	10 inches	12 inches	14 inches	16 inches	18 inches	20 inches and up	
	Million board feet						
Southern yellow pines	129.1	157.8	166.4	122.8	89.4	156.3	821.8
Other eastern softwoods	230.2	422.8	479.0	512.3	384.2	962.3	2,990.8
White oaks (Q. alba and michauxii)	...	86.6	103.1	99.1	71.9	140.3	501.0
Other white oaks	...	240.6	291.4	378.8	337.1	1,638.2	2,886.1
Red oaks (Q. rubra, falcata var. pagodaefolia and shumardii)	...	76.1	106.7	92.8	86.0	145.7	507.3
Other red oaks	...	490.3	548.3	482.1	535.1	1,669.0	3,724.8
Sugar maple	...	4.5	5.5	2.2	1.3	...	13.5
Beech	...	6.4	10.9	22.9	22.0	77.3	139.5
Sweetgum	...	414.2	514.3	462.5	433.4	824.4	2,648.8
Tupelo and blackgum	...	446.8	468.0	407.3	338.6	672.3	2,333.0
Yellow-poplar	...	8.7	12.9	12.7	12.0	33.9	80.2
Other eastern hardwoods	...	1,717.6	2,085.9	2,049.4	1,935.1	4,209.9	11,997.9

Table VIII. --Net volume of all timber on commercial forest land, by class of material and species group, Mississippi Delta, 1947-54

Class of material	Total	Softwoods	Hardwoods
	Million cubic feet		
Growing stock:			
Sawtimber trees:			
Sawlog portion	4,515.4	627.8	3,887.6
Upper stem portion	1,756.6	83.8	1,672.8
Total	6,272.0	711.6	5,560.4
Poletimber trees	2,016.7	110.1	1,906.6
Total growing stock	8,288.7	821.7	7,467.0
Other material			
Sound cull trees	1,071.1	16.0	1,055.1
Rotten cull trees	756.6	43.2	713.4
Hardwood limbs	998.2	...	998.2
Salvable dead trees	40.3	8.0	32.3
Total other material	2,866.2	67.2	2,799.0
Total, all timber	11,154.9	888.9	10,266.0

Table IX. --Net annual growth, annual mortality, and annual cut of live sawtimber and growing stock on commercial forest land, by species group, Mississippi Delta, 1954

Item	Sawtimber			Growing stock		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	Million board feet			Million cubic feet		
Net annual growth	1,522.5	192.7	1,329.8	430.5	40.0	390.5
Annual mortality	171.9	22.9	149.0	55.8	5.3	50.5
Annual cut 1/	1,029.4	104.9	924.5	260.9	23.8	237.1

1/ Separation by timber products and logging residues not available.

Table X. --Output of timber products and annual cut of live sawtimber and growing stock, Mississippi Delta, 1954

Product	Output of timber products			Annual cut	
	Volume in standard units		Roundwood volume[1/]	Sawtimber[1/]	Growing stock[1/]
	Standard units	Number			
			Thousand cubic feet	Thousand board feet	Thousand cubic feet
Sawlogs	MBM[2/]	547,300	84,400	565,400	123,300
Veneer logs and bolts	MBM[2/]	77,800	13,000	86,000	18,800
Cooperage logs and bolts	MBM[2/]	53,800	7,700	68,000	15,300
Pulpwood	Std. cords[3/]	252,000	19,000	31,200	17,400
Fuelwood	Std. cords[3/]	1,362,000	102,000	209,800	65,900
Piling[4/]	M linear feet	1,800	1,300	7,400	1,500
Posts	M pieces	6,400	4,200	10,700	3,700
Miscellaneous[5/]	M cu. ft.	12,700	12,700	50,900	15,000
Total			244,300	1,029,400	260,900

1/ Product break-down by hardwood and softwood not available. About 90 percent of total is hardwood.
2/ International 1/4-inch rule.
3/ Rough wood basis.
4/ Includes negligible amount of poles.
5/ Includes hewn ties, farm timbers, handle stock, and miscellaneous dimension stock.

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